AGRICULTURAL PUBLICATIONS.

The following publications have been issued by the Department, and are available for distribution at prices mentioned:—

"Fruit Tree and Grape Vine Pruning," by Geo. Quinn (Horticultural Instructor); price, 2s. 6d.; posted, 2s. 8d.

"Vinegrowers' Manual," by A. Sutherland; price, 6d.; posted, 7d.

Journal of the Department of Agriculture, 1s. per annum in advance; 3d. per single copy to residents of South Australia. Other places, 2s. 6d. per annum.

Any of the following bulletins and leaflets may be obtained by sending a penny stamp for postage:—

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Cocky Chaff and Straw as Feed for Stock	III.
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All communications to be addressed:

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R. P. BLUNDELL,

Minister of Agriculture.

POINTS FOR PRODUCERS.

Mare Retaining Cleaning.

A mare should clean within a few hours of birth, and if not cleaned by the eighth hour, the following procedure should be followed (says the Veterinary Lecturer):—Take a split stick, and wrap the dark inside part of the cleaning round it, and roll with steady pressure till the whiter outside part disappears; shortly after this the whole will come away on the stick. If too far gone, clean out with as much Condy crystals as will lie on a sixpence in a kerosine can of warm water, or a handful of washing soda to a similar quantity of water. Give 10 drops tr. pulsatilla three times a day for three days.

Importance of the Small Herd.

The breeder of cattle who owns only a few cows is an essential part of the forces that are carrying forward the interests of pure-bred live stock, says the *Breeder's Gazette* (Chicago). In many cases, however, he needs to understand more clearly his importance and to realise that the improvement of the breed he has selected is in his keeping and of others like him. While it is true that the sires of great reputation, and prize-winners generally, are found in large herds, yet the large herds are comparatively few in number; an overwhelming majority of the good breeding cows are owned in small herds. The man with a small herd ought to exalt his calling and especially ought he to recognise his responsibility in upholding the quality of the breed he has chosen. The advantages are far from lying altogether with the one who owns an extensive herd.

The principles of breeding, the history of the breed, the experience of master breeders are alike accessible to all. Herd management, methods of feeding, and plans for developing the calf are not limited by the number of breeding cows owned. Sources of information open to the extensive breeder are not denied to the small one. The man with 100 cows in his home pasture probably cannot learn more at the International than the man with 10. And while the bull in the big herd has an extensive opportunity to impress his excellence, yet the problems of mating may be as essentially met with the sire in the small herd. The limiting factor usually is not the number of animals in the herd; it is apt to be found in the whole-hearted application by the man of his best energies to the task in hand. The tendency to under-value his opportunity and to under-estimate his contribution to the sum of breed improvement and live stock excellence is apt to lead a man to carelessness, which causes him to fail of his best attainments.

Weevil in the Wheat Stacks.

Wheatgrowers will be interested to learn that a Wheat Weevil Committee has been established in connection with the Wheat Harvest Board, with Dr. Hargreaves (Director of Chemistry) as chairman. This committee is actively prosecuting enquiries as to the best means of combating the weevil pest. In conjunction with the Board, the Department of Chemistry has been carrying out a large series of experiments, and trials of various apparatus, and they are now engaged in conducting a special trial on a large scale.

Soldiers and Tree Planting.

Any movement calculated to provide profitable employment for returned soldiers commends itself *ipso facto*. A movement to engage the services of discharged soldiers for the purpose of planting public gardens, reserves, and roads would appear to carry with it the added advantage of building up a valuable national asset. The Returned Sailors and Soldiers Imperial League of Australia is fully imbued with the possibilities of treeplanting in this connection, and a proposal, initiated by the Victorian Minister of Forests (Hon. T. Livingston) to plant 550 acres of reserves under the control of the City Council of Melbourne has met with general approbation. It is proposed that each tree should have affixed to it a medallion memorizing the name of a soldier. The League has issued an appeal to other municipal bodies to follow suit, and the response has been gratifying. To those districts desirous of doing honor to their local soldiers, a fine opportunity of doing a graceful and a useful service presents itself.

LUCERNE.

"If lucerne is to be grown under irrigation, no soil preparation is too good for it," says the Superintendent of Experimental Work (Mr. W. J. Spafford) in reply to a correspondent farming in the Nott's Well district, "and where possible, the land should be bare-fallowed for a year, and very thoroughly worked throughout that period to free it from all weeds, and to properly aerate it. In your district sow in the autumn, using 20lbs. of seed per acre, broadcasting the seed after a watering, then rolling or lightly harrowing in the seed.

"If the lucerne is to be grown without irrigation, as a field crop for grazing, the simplest plan for seeding the crop is to put it in with a cereal crop on bare fallow. Immediately after the cereal has been drilled in, the block should have lucerne broadcasted at the rate of 6lbs. to 10lbs. to the acre, and be lightly harrowed.

"Lucerne should not be planted on land until it is fairly free from shoots, because it is too expensive a crop to start to have to compete with shrubs and trees. For such an expensive and such a valuable crop the land should not only be ploughed, but should be very thoroughly worked, so that it is free from weeds, and is in a good condition of tilth, i.e., what is known as a good seed bed.

"The seed should not be too deeply covered, and a properly made brush harrows does this work well enough, provided the seed is sown on a good seed bed. If the sand is not too poverty stricken, lucerne should do comparatively well, providing it gets a good start and is handled with intelligence."

INQUIRY DEPARTMENT.

Any questions relating to methods of agriculture, horticulture, viticulture, dairying, &c., diseases of stock and poultry, insect and fungoid pests, the export of produce, and similar subjects, will be referred to the Government experts, and replies will be published in these pages for the benefit of producers generally. The name and address of the inquirer must accompany each question. Inquiries received from the question-boxes established by Branches of the Agricultural Bureau will be similarly dealt with. All correspondence should be addressed to "The Editor, *The Journal of Agriculture*, Adelaide."

[Extraordinary pressure on space has rendered it necessary to very considerably curtail the inquiry department. Replies to those questions of more general interest only have been published; however, every query received has been replied to through the post.—Ed.]

VETERINARY INQUIRIES.

[Replies supplied by Mr. F. E. Place, B.V.Sc., M.R.C.V.S., Veterinary Lecturer.]

"F. L. C.," Minlacowie, has a mare stiff in forequarters and knees, on which are swellings as big as eggs; knees bent outwards.

Reply—The age is not given, so that it is difficult to exactly diagnose the trouble, but it would appear that it is a rachitic diathesis, and not likely to yield to treatment. Blisters on the front of the knees may be tried and repeated once a month for three months. Let the animal have a lime lick composed of slaked lime 40 parts, bonemeal 10 parts, saltpetre 5 parts, resin 5 parts.

"W. H. S.," Balhannah, has a horse with greasy heels.

Reply—Give a heaped teaspoon of sulphur in food twice daily for a fortnight. Dress heels twice daily with white lotion, consisting of sugar of lead ½oz., sulphate of zinc ½oz., water ½ pint, methylated spirit, ½ pint. When this seems to have set up healthy action dust with slaked lime 7 parts, sulphur 1 part. Do not wash or keep wet. If the horse comes in with wet heels rub dry with bran bag.

"H. J. J.," Inman Valley, has ewes of all ages, a few days to a month before lambing, in really good condition, running in good feed; evert vagina, strain, and seem in great pain. Suggested that stomach is over distended with gases, and there is no room for lambs and other organs.

Reply—The suggested cause is the right one, but the distension is partly brought about by parasites producing anaemia. It is probable that if the parts are well cleaned and returned, and a good dose of a sedative, such as 1oz. of laudnaum, or better, ½oz. chloral hydrate is given, that the trouble will be overcome; but as a preventive it is desirable to let the ewes have a lime lick, consisting of slaked lime 50 parts, common salt 40 parts, sulphur 10 parts, resin 5 parts. When a ewe is noticed to be blown and straining a teaspoon of cloudy ammonia in a half teacup of cold water.

"W. M. S.," Lucindale, has sheep "coasty," weak, thin; unable to travel, skin pale, liver small; worms in fourth stomach.

Reply—The worms are probably *Strongylus filicollis*, or *Macfadyensis*, both of which are common in the fourth stomach. The condition of the liver and bladder was due to the anaemia present, caused by the worms and similar parasites. Names like "coasty" mean nothing, and the diseases are in most cases parasitic in nature. Cooper's worm tablets will have a beneficial effect on sheep so affected. It is a pleasure to find someone sufficiently interested in the health of his sheep as to make a post-mortem. Losses would be less if more would do so, and notice small parasites such as those sent.

"E. J. McL.," Angas Plains, has a cow paralysed after milk fever, from which she recovered.

Reply—She is better on ground not slung. Rub back and quarters vigorously every day with strong liniment, give tincture nux vomica 30 drops three times a day, feed green feed and bran with long hay. Milk her regularly, and soon begin to strip, else she will go dry, and there is no occasion for that. Several weeks may elapse before she can get up. It is impossible for me to come and see her, but by following the above directions she should mend.

"H. A. W.," Bordertown, has a filly, five years, injury to eye, scum, blotch, matter.

Reply—The boracic was good treatment, and a little might be blown in once or twice a week for some time. Twice daily put in a few drops of a solution of nitrate of silver, 4grs. to 1oz. of distilled water. There is no chance of saving the sight, but the eyeball may be preserved. Feed and work as usual, but if weather is dusty hang cloth over blinker.

"A. W. W.," Parilla, has a cow, 12 years, which has fits, crouches on front legs, backs, staggers, bellows as if in pain, trembles; raised her head high, chewed fast, collapsed, and remained unconscious for two minutes; raised herself on one knee, and gradually recovered. Water was running from her mouth.

Reply—The symptoms point to a complication of pericarditis and tubercular meningitis. The former is often caused by a sharp substance such as wire swallowed and penetrating the heart bag; it is also frequently tubercular in character. Whichever is the case, nothing can be done for an old cow, and it would be best to destroy her by cutting her throat and examining the heart bag, and coverings of the brain, which organ should be taken out ordinary butcher's way.

"W. S. N.," Tarcowie, has a mare which gets lumps on shoulders as big as marbles, which soften and run into sores.

Reply—Under the skin of the shoulders there are glands, and irritation causes them to enlarge, suppurate and burst. Care of the shoulders, attention to size and cleanliness of collar are preventives. When the lumps appear, slit the skin with a sharp knife, and squeeze them out. If this is done by making the cut towards the back of the lump, it will not interfere with work; 12lbs. or 14lbs. oats a day would do a lot towards preventing them.

"A. B.," MacGillivray (K.I.), asks the relative value of roots cooked or raw for feeding to pigs.

Reply—Experiments have been carried out in England, Europe, and America on feeding roots (mangolds) cooked and raw, the balance is in favor of raw roots. Potatoes are an exception, cooking improves their feeding properties.

"E. F.," Paringa, has a foal. The milk returns through nose when sucking; this is the second foal from this mare affected.

Reply—The trouble arises from a defect in the formation of the palate and nostrils, and if it does not improve as the foal gets older it will be best to destroy it. As it is apparently a congenital deformity, the mare is likely to throw others like it if bred from. Treatment is useless.

"H. D.," Belalie North, has a mare which shakes her head, nearly falls; staggers backwards, trembles, eyes grow big. The attacks, which have extended over a year, get worse.

Reply—The symptoms, well described, especially the enlarging of the pupils of the eye, show that the mare suffers from "staggers," in other words the blood vessels of her brain are diseased. Unfortunately there is nothing to be done in the way of preventive treatment, beyond not working on a full belly or in a tight collar, such animals are very dangerous to drive, as if the early symptoms are not watched they may fall suddenly. Relief during an attack is found in bleeding at the neck vein. As the attacks will become more frequent and acute it is best to destroy the beast.

"W. F. S.," Naracoorte, has sheep with scabby mouths.

Reply—This trouble is parasitic and common around Naracoorte. It yields quickly to a dressing of damp bluestone rubbed over the scabs, and followed by a dab of Stockholm tar.

"H. H. C.," Mannanarie, Yongala, has a cow which caught chill across loins after calving.

Reply—It was wise to give the hot bran mashes. In my opinion it is not advisable to milk a cow out before calving. Nature arranges for the milk to coincide with the birth of the calf, and any interference with the process is detrimental to both cow and calf. More cases of "drop" or milk fever are due to this cause than any other.

"J. G. C.," Warrow, has grey gelding, which after falling off, died. P.M.—Liver, kidneys, spleen congested; heart clot, and yellow jelly, which also appeared round bowels.

Reply—The conditions found point to parasitic anaemia, which, though not due to tsetse fly, are caused by cousins of that fly common on the West Coast. The jelly in the heart was a thrombus that forms at death normally.

"I. D.," Whitwarta, has mares, swollen under jaw and offensive discharge.

Reply—Probably strangle abscesses. Give a teaspoon of saltpetre in food or water twice a day for a week. Wash out abscesses with warm water in which soda has been dissolved at the rate of a handful to a bucket.

HORTICULTURAL INQUIRIES.

[Replies supplied by the Horticultural Instructor, MR. GEO. QUINN.]

Butler Agricultural Bureau seeks advice as to the bearing qualities of Brandis almonds when planted without other varieties in the vicinity. "The Brandis almond blossoms very early, and the variety blooming partly in the same period is Peerless. It is quite possible, owing to the Brandis blooming so early it is the effect of the rough, cold, and often wet weather experienced then as much as the absence of other sorts, which causes such a poor setting of the fruits. Such weather conditions are not only inimical to the activities of insect life, but the pollen grains become massed and clogged and washed or blown away on to the ground. This condition is supported by the fact that later blooming sorts, such as Hatch's Nonpariel, and I.X.L., appear to set more consistently when grown alongside these early blooming sorts."

"G. E.," Purnong, asks for a method for shifting an orange tree seven years old "The tree could be shifted by the following procedure:—Give it a good watering, if the soil is not moist, a couple of days before removing it. Prepare a large hole for its reception, using good rich soil in the bottom, then excavate around the tree, starting in a ring with about 2ft. or 3ft. radius from the stem, and work in and under this earth ball of roots. Then split a strong sack, and carefully pass it under the ball. Prune the top back to about half its original size if very well developed, then carry the tree in the sack, and place it in the prepared hole, burying the sack in its undisturbed place; it will soon rot away. Settle the tree with a good soaking of water at once, and if the weather is hot screen over the tops with bagging or bushes."

"C. T. E.," Henty, New South Wales, asks for a spray for shot hole on the apricot. "Either Bordeaux mixture (bluestone and lime) or Burgundy mixture (bluestone and washing soda) is effective against shot hole. They are more particularly so if applied just as the leaves are falling in autumn, and again as the flower buds begin to show color in the spring. If the spring is showery it may be necessary to spray again when the fruits are not larger than gooseberries. The Bordeaux is composed of 1lb. bluestone, ¾lb. quicklime for each 10galls. of spray. The Burgundy may be made by using 1lb. each of bluestone and washing soda to each 10galls. of spray."

POULTRY INQUIRIES.

[Replies supplied by the Poultry Expert, Mr. D. F. LAURIE.]

Longwood Branch ask the cause of crooked breast in fowls. This may be due to several causes—(1) When crooked and back deformed, it is generally due to hereditary taint. (2) May have been caused by injury when young. (3) Heavy breeds overfed on food lacking bone-forming substances, often have bent keels. (4) Chickens roosting on narrow perches, such as boards on edge. I have experimented with this cause on many occasions. In such cases there is a pronounced dent in the keel or breastbone.

DUTIES OF FARMERS AS REARERS OF LIVESTOCK FOR THE STATE.

AN ADDRESS DELIVERED AT THE CONFERENCE OF PINNAROO LINES BRANCHES OF THE AGRICULTURAL BUREAU.

[By ARTHUR J. PERKINS, Director of Agriculture.]

I am afraid that the title under which my address was advertised may have proved misleading. I do not wish to confine my remarks to sheep on the farm; indeed, my main object to-day is to draw attention to the position of livestock in South Australia; to its great importance from the point of view of wealth production; and to the unfortunate fact that, in recent years, it has shown marked signs of decline. I shall emphasize the position of sheep particularly, because I believe that this type of livestock is not only the one best adapted to the general conditions of the State, but also peculiarly suitable to mallee districts, so soon as the latter have been thoroughly reclaimed from scrub conditions.

It should be stated at the outset, perhaps, that the interest of farmers in general in livestock questions is of comparatively recent origin. Twenty or 30 years ago it was generally assumed that the farmer's business was confined to the growing of crops, the chief among which was wheat; whilst the handling of livestock, excepting to the extent of draught requirements, was generally left to others to deal with.

Matters have changed considerably within recent years, however, and most farmers now look to livestock to help to run their farming operations profitably; and it may be added that the future prosperity of farming operations over the bulk of South Australia will depend very largely on the extent to which it will prove possible to blend together the growing of crops on the one hand, and the handling of livestock on the other.

We are apt to forget at times that it is not the farmer alone who is interested in this particular question; and yet the interest of the State as a whole is even greater than that of the farmer, and I shall endeavor to show in this particular connection that, apart altogether from his own particular interests, the farmer owes a special duty to the State.

I propose first bringing under your notice some data which will bring home to you the vast importance of livestock industries, both to South Australia and the Commonwealth as a whole. My data are collected from the public statistics. Unfortunately, it would not serve our purpose to make use of the latest figures published. These late figures have been collected under conditions that are exceedingly abnormal, and it would perhaps be unwise to base definite conclusions upon them. We cannot, however, escape the general conclusion that our livestock industries have within recent times lost ground very seriously. The 1914 drought is generally held responsible for this fact; there are, however, other factors equally potent, to which attention will have to be drawn.

I propose taking my first illustrations from the general condition of affairs as it existed in 1911. I choose this year because at that time drought conditions had not yet made themselves felt, and the war was not then thought of. Later on, I shall take up similar data for 1915, representing the latest statistical information that is available on the subject.

I shall draw your attention to Table I. In this table is indicated both the total number of livestock in the Commonwealth and their value expressed in pounds sterling. It should be stated in this connection that the only possible means of arriving at a reasonable average value for livestock consists in averaging up the general figures recorded from time to time for livestock sales during the period under consideration. Hence, figures given in the third column of the table are average, but not necessary absolute, values. You will note from this table that the Commonwealth had at the time over 93,000,000 sheep; this represented probably the largest flock in the world. Unfortunately, since that time we have been overhauled by others, and probably occupy only third or fourth place to-day. Additionally, the total value of the Commonwealth livestock was something like 200,000,000 sterling. This figure should convince us of the tremendous significance of livestock in our capital wealth.

TABLE I.—*Showing Commonwealth Livestock in* 1911.

	No.	Average Individual Value.			Average Total Value.
		£	s.	d.	£
Sheep	93,003,521	0	14	0	65,102,500
Cattle	11,828,954	6	5	0	73,931,000
Horses	2,279,027	26	10	0	60,394,200
Pigs	1,110,721	1	16	0	1,999,300
Average Total Value					£201,427,000

We get a further idea of this importance of livestock by the data summarised in Table II. We see here that the total exports of the Commonwealth in 1911 had a value of about 79½ million sterling. In this total over 39,000,000 sterling were directly derived from our livestock industries. That is to say the livestock industries of the Commonwealth were in 1911 responsible for close on 50 per cent. of our total exports.

TABLE II.—*Showing Commonwealth Exports in* 1911.

	£
Total exports (value)	79,482,258
Exports derived from livestock industries (value)	39,074,535 or 49.16 per cent.

We shall now pass on to what more immediately concerns us, namely, the position of South Australian livestock in 1911. This is shown in Table III. We see there that at the time our sheep exceeded 6,000,000, our cattle close on 400,000, and our pigs over 93,000, whilst the total capital value of our livestock was represented by close on 14,000,000 sterling.

TABLE III.—*Showing South Australian Livestock in* 1911.

	No.	Average Individual Value. £ *s.* *d.*	Average Total Value. £
Sheep	6,171,907	0 14 0	4,320,330
Cattle	393,566	6 5 0	2,459,790
Horses	259,719	26 10 0	6,882,550
Pigs	93,130	1 16 0	167,634
Average Total Value			£13,830,304

We shall probably form a more correct idea of the importance of South Australian livestock industries by closer consideration of the summarised results of the direct returns from livestock in 1911. These are shown in Table IV. We may notice, among other things, that for home purposes we slaughter about 1,000,000 sheep per annum, and that the local meat bill amounted in 1911 to over one and a half million sterling.

TABLE IV.—*Showing Chief Returns from South Australian Livestock Industries in* 1911.

ANIMALS SLAUGHTERED.

			£ *s.* *d.*	£	
Sheep	1,275,734	@	0 14 0	893,014	
Cattle	87,293	@	6 5 0	545,581	
Pigs	88,170	@	2 10 0	220,425	
					1,659,020

OTHER PRODUCTS.

Butter made	9,694,666lbs.	463,101
Cheese made	1,526,930lbs.	40,729
Wool clip	60,056,470lbs.	2,003,980
Bacon and ham cured	4,311,497lbs.	127,900
Tallow	2,352,000lbs.	28,054
Lard	131,318lbs.	2,917
Bonedust	2,603 tons	14,551
Total value of Chief Products		£4,340,252

In the above are not included sheepskins and hides, of which, independently of home consumption, Australia exports annually about three millions sterling (£3,000,000) worth.

Sheep, cattle, and pigs slaughtered		£1,659,020
181,812 sheep and lambs exported	£36,362	
30 pigs exported	90	
		36,452
Local meat bill, including boiling down, &c. (year 1911)		£1,622,568

We have now seen what was the position of our livestock industries prior to the drought and prior to war conditions. By way of contrast, I propose referring you to a similar series of tables, in which the position is set out for the year 1915. This is the latest for which complete statistics can be secured.

In Table V., which corresponds to Table I., are shown both the price and the value of the Commonwealth stock in 1915. It will be noted that sheep had declined to 69¼ million, a reduction of over 25 per cent.; cattle to less than 10 million, a reduction of 16 per cent.; pigs to three-quarters of a million, a reduction of 32 per cent. In spite of these falls in numbers, total money value of the Commonwealth livestock was about 50 million sterling, higher than in 1911. The cause of this, however, is purely artificial, and is represented by the abnormal rise in prices all along the line. The average value of sheep rose from 14s to 27s.; the average value of cattle from £6 5s. to £11 15s.; the average value of pigs from 36s. to 76s. Horses alone have shown a decline in value, indicating probably stagnation in our general farming industries. We must realise, therefore, that this heavy loss in numbers of livestock represents very appreciable loss in national wealth, a loss which is, however, hidden from us by the reason of the abnormal high prices that at present obtain. It is certain, however, that this loss of wealth will ultimately be brought home to us, so soon as war conditions permit of a general fall in prices; and it behoves us, therefore, to make every effort towards repairing these losses before the fall in prices has time to set in.

Table V.—*Showing Commonwealth Livestock in* 1915.

	No.	Average Individual Value.			Average Total Value.
		£	*s.*	*d.*	£
Sheep	69,257,189	1	7	0	93,497,200
Cattle	9,931,416	11	15	0	116,694,100
Horses	2,337,920	17	5	0	40,329,100
Pigs	753,693	3	16	0	2,864,030

Average Total Value £253,384,430

Similarly we see in Table VI. which corresponds to Table III., the total numbers and the average value of South Australian livestock. It is to be feared that our individual losses are even greater than those of the Commonwealth as a whole. Our sheep have fallen to a little over three and a half million; our cattle to little over 200,000, and our pigs to a little over 66,000; and, in spite of abnormally high prices, the total value of our livestock was about 1¾ million less than in 1911.

TABLE VI.—*Showing South Australian Livestock in* 1915.

	No.	Average Individual Value.	Average Total Value.
		£ *s.* *d.*	£
Sheep	3,674,547	1 7 0	4,960,000
Cattle	226,565	11 15 0	2,662,140
Horses	253,333	17 5 0	4,370,000
Pigs	66,237	3 16 0	251,700
Average Total Value			£12,243,840

For greater clearness I have indicated the percentage decrease of South Australian livestock between 1911 and 1915 in Table VII.

TABLE VII.—*Showing Decrease in South Australian Livestock Between* 1911 *and* 1915.

	Total Decrease.	Percentage Decrease.
Sheep	2,497,360	40.46
Cattle	167,001	42.43
Horses	6,386	2.46
Pigs	26,893	28.88

It will be seen that the decreases are serious all along the line. The decrease in pigs, nearly 29 per cent., although heavy, need not cause us much anxiety. Pigs have been up and down at regular intervals for the last 30 years; and, in my opinion, there can be no definite progress in the pig industry, no stability in the advances made, until we have taken definite steps towards establishing an export trade in cured pork. The bulk of the bacon and ham imported into Great Britain prior to the war was secured in Canada and United States, countries in which labor conditions are very similar to our own, and if they find it to their advantage to export these articles to Great Britain, there appears to be no sound reason why we should not be able to do the same. It is very evident, however, that the industry is not likely to establish itself if left to the unaided action of private enterprise. It seems to me that the State should offer special bonuses for the export of cured pork; this should lead to the establishment of large factories, some of which would probably be co-operative, aiming generally at the production of a good even article which could be exported to advantage. But until some such steps are taken, notwithstanding the extreme usefulness of the pig on the farm, and its adaptability to our conditions, I see no likelihood of any important expansion of the pig industry. The decrease in cattle, about 42½ per cent., is exceedingly serious. No doubt the chief causes of these losses are the 1914 drought, and the high prices that have since prevailed for butchers' meat. The State cannot do too much for the dairying industry if it has at heart the success of closer settlement; and I trust in this connection that everything possible will be done, not only towards bringing up our herds to their original numbers, but also towards expanding them. There is no doubt that the Murray reclaimed swamp lands offer ample room for the expansion of dairy interests, and, though to a less degree, dairy cattle could no doubt be kept in greater numbers on the mallee farms.

So far as these mallee districts are concerned, however, I think that it is in the reduction of our flocks by over 40 per cent. that chief interest should be concentrated. But before drawing special attention to sheep, I wish to indicate in Table VIII., which corresponds to Table IV., our chief livestock returns in 1915.

TABLE VIII.—*Showing Chief Returns from South Australian Livestock Industries in* 1915.

			£	s.	d.	£	£
ANIMALS SLAUGHTERED.							
Sheep	918,526	@	1	7	0	1,240,010	
Cattle	82,070	@	13	0	0	1,066,910	
Pigs	51,256	@	5	8	0	276,780	
							2,583,700
OTHER PRODUCTS.							
Butter made	6,317,613lbs.						448,083
Cheese made	1,412,692lbs.						52,326
Wool clip	33,969,975lbs.						1,524,288
Bacon and ham cured	2,432,485lbs.						126,120
Tallow	862,400lbs.						10,682
Lard	77,605lbs.						3,034
Bonedust	1,468 tons						10,567
Total Value of Chief Products							£4,758,800
Sheep, cattle, and pigs slaughtered (value)							£2,583,700
Exported—3,932 cattle						£51,116	
" 389 sheep						525	
							51,641
Local 1915 meat bill, including boiling down, &c.							£2,532,059

It will be noticed, in the first place, that the total value of these chief livestock returns is approximately similar to the total value of the same returns in 1911; not because there has been no decline in quantities, but because there has been very considerable enhancement in general prices. It is perhaps worth while noticing that whilst the number of livestock slaughtered was smaller in 1915 than 1911, our local meat bill in 1915 was as high as two and a half million sterling.

I have now done with the general position, and I trust that you have been able to realise, from the figures given, first, the enormous importance to the State and Commonwealth of our livestock industries. And, secondly, the fact that they are at present in an exceedingly dangerous position, from which you, as farmers, are called upon to extract them as soon as opportunity offers.

Let us now pass on to a closer consideration of the sheep question, and let us first recall that to lose over 40 per cent. of our flocks in the course of four short years is a very serious loss indeed. Unfortunately, we shall have to put on record that a decline in our flocks had set in even earlier than the drought in 1914. A glance at Table IX. will give us some idea of the position.

Table IX.—*Showing Sheep in South Australia,* 1897-1915.

Year.	No.	Year.	No.
1897	5,032,541	1907	6,829,637
1898	5,012,620	1908	6,898,451
1899	5,667,283	1909	6,432,038
1900	5,235,220	1910	6,267,477
1901	5,012,216	1911	6,171,907
1902	4,880,540	1912	5,481,489
1903	5,298,720	1913	5,073,057
1904	5,820,301	1914	4,208,461
1905	6,277,812	1915	3,674,547
1906	6,624,941		

The decrease since 1908 is represented by 3,223,904, or nearly half the flock as constituted in 1908.

It will be noted from this table that since 1908, that is to say long before the drought was thought of, our flocks have been steadily falling, and that by 1915 we had lost nearly four and a quarter million sheep, or about half of our flock as constituted in 1908. We must realise, therefore, that there have been other influences at work undermining our flocks for some considerable time. Let us here take a glance at the value of our flocks to the Commonwealth as a whole. This is indicated below in Table X., in which are shown the Commonwealth gross flock revenues in 1909. It will be noticed that they total about 38½ million sterling.

Table X.—*Showing Gross Total Commonwealth Flock Revenues in* 1909.

	£
Wool	28,000,000
Frozen mutton	1,231,035
Sheepskins	2,000,000
Locally slaughtered animals	6,000,000
Animals exported alive	23,801
Tallow	1,229,541
	£38,484,377

From the point of view of wool returns alone, South Australia can ill afford any reduction in our flocks. A glance at Table XI. will show what this reduction represents to us.

Table XI.—*Showing Quantity and Value of South Australian Wool Clip,* 1910-1915.

Years.	Quantities.	Values. £	Average Price per lb.
1910	63,613,781lbs.	2,248,060	8.48d.
1911	60,056,470lbs.	1,908,959	7.63d.
1912	56,691,036lbs.	2,097,754	8.88d.
1913	55,014,048lbs.	1,983,342	8.65d.
1914	38,848,978lbs.	1,355,350	8.37d.
1915	33,969,975lbs.	1,524,288	10.77d.

We may see from this table that the wool produced in 1915 is little more than half of that produced in 1910, and that in spite of considerable rise in prices, we stood to lose about three-quarters of a million sterling.

It is quite true that we have been through droughts earlier in our history; that our flocks have declined during these droughts; it is also true that later on they recovered with amazing swiftness; and it may be argued, in the present instance, that history will probably repeat itself. Unfortunately, however, as has already been stated, there are other important factors to be taken into consideration besides drought. There is not the slightest doubt that our closer settlement policy—a policy which cannot be avoided in any circumstances—has been largely responsible for the reduction of our flocks. Now, I have no wish to quarrel with closer settlement; very far from it. Wherever we have good fertile land and reliable rainfall, we must sooner or later introduce the plough; this is one of the necessities of national progress, and it would serve no good purpose to quarrel with what is inevitable. I am of the opinion, however, that this splitting up of grazing land, which closer settlement almost invariably entails, need not necessarily lead to a marked reduction in our flocks; indeed, I am strongly of the opinion that so well adapted to farming conditions in South Australia are sheep, that so soon as our land is efficiently farmed, it should carry more sheep than was the case under station conditions. The position, I think, may be in all fairness placed as follows:—As a matter of necessity the State purchases and splits up large grazing properties for the immediate benefit of the farmer, but in the interest of the State as well; in the circumstances it becomes the duty of the farmer, as soon as his circumstances permit him to do so, to build up again the flocks which he has been instrumental in driving off the land. Fortunately, it may be added that no surer economic foundation for farming under South Australian conditions can be named than a reasonable combination of sheep and wheat. What are the particular advantages of sheep on the farm? This point has been very frequently raised, both by myself and by others. It is, however, of sufficient importance to bear repetition, and I make no apology for doing so.

Let me point to the fact that there arose at one time a school of thought who held that any form of livestock represented a direct loss on farming operations; in other words, that livestock on a farm were a necessary evil. These theoretical views, however, have never made much progress in any country, and they have not the slightest chance of survival under our special conditions. It may, I think, be argued here perfectly legitimately that with us the profitableness of farming may be measured by the extent to which livestock operations are combined with the growing of crops; and in South Australia, under average conditions, there is no type of livestock of greater economic importance than sheep. I am, of course, excepting pigs, which I hold should be present on every farm, if export conditions could be definitely established. The great advantage of sheep is their general hardiness, and the fact that they are not costly to maintain even under most adverse conditions. The type of herbage which our average farm grows will fatten sheep whilst it would often dry off dairy cattle. Sheep are invaluable for keeping farmed land clean, by feeding down undesirable weeds and plants which would otherwise go to seed. In any country in which the soil is as light as in this district, a flock of sheep is as good, if not better, than a land roller; their weight, relatively to the surface of their feet, is considerable, and they pound down the soil and consolidate it, and so render it better adapted to the growing of wheat crops. When feed gives out, there is no particular difficulty in hand-feeding sheep, particularly if we utilise offal grain and the secondary cereals. To the farmer they are valuable both for the wool they supply and for their carcasses, which can be fattened off very easily.

I have always urged that the average farmer will find it safest to carry a fat lamb flock of ewes, and no doubt this is still the case to-day. I am afraid, however, that the time has come when farmers must be prepared to carry other types of flocks, and I must confess that here I have not in mind the speculative farmer who buys odd flocks in the hope of fattening them at a profit. I have greater sympathy for the farmer who is a breeder, because he is helping to build up wealth for the State. In the past the farmer who reared fat lambs could secure his ewes from out stations; but if the station flocks are dispersed, where are the ewes to come from? I have no doubt in my mind as to where they must come from, and as to where they eventually will come from, and that is, from those farmers who are able and qualified to rear ewes for their fellows.

I do not wish to imply that all farmers should breed their own ewes. Many of them will be unable to do so, others will not be fitted to do so; there is no reason, however, why some of our farmers should not prove as good breeders and handlers of livestock as the station managers. No doubt, in the first place it is a question of personal aptitude, which may spring up on the farm quite as much as on the station. It is sometimes argued that our flocks will deteriorate unless they can be handled in large numbers, as has been the case in the past on the stations. I have never been able to accept this point of view; indeed, it seems to me quite contrary to what is likely to happen. Given a farmer with breeding instincts well developed in him, I take it that he will have greater opportunities to breed first-class sheep on a small farm than he could possibly have on a station, where numbers run into thousands. It is, perhaps, forgotten that England, which has produced more breeds of sheep and better breeds of sheep than any other country in the world, is a country of small flocks from our point of view. What the breeders of England have been able to do in the past, their descendants here, so soon as they acquire familiarity with the sheep, will be able to do also. Moreover, it should be sufficient to point out that the only way large stations are able to maintain the quality of their flocks is by securing from time to time suitable rams reared in small stud flocks. Up to a certain point the flock of the farmer who breeds sheep can be looked upon, if properly attended to, as a stud flock. I take it, therefore, that an increase in our flocks is dependent very largely on the ability of our farmers to take up the task of breeding suitable animals. I wish to impress upon you that the rebuilding up of our flocks is not going to be an easy matter, and chiefly for the following reasons. These reasons have been summarised briefly in Table XII., to which I will refer you.

TABLE XII.—*Showing Inevitable Slowness in Increase of Local Flocks.*

1915 statistics show out of a total of 3,674,547 sheep and lambs, only 1,935,889 ewes.

Not all these will be breeders, and many will die from natural or other causes.

Statistics show that for the five (5) year period 1911-1915 the average percentage mortality of our flocks from all causes to be 2.66 per cent.

This would represent a loss of about 52,000, leaving a balance of about 1,884,000.

A general lambing percentage of 70 per cent. is probably all that we can expect in favorable circumstances, if we make allowance for inevitable losses of young animals.

We cannot expect more, therefore, than about 1,300,000 lambs.

We know that about 1,000,000 sheep are slaughtered annually for local purposes.

At best, therefore, the increase in our flock cannot exceed by much a quarter of a million head.

I note, too, that it may be said that South Australian farmers have been doing their best towards building up flocks within recent years. I wish much that this were true; and, indeed, I was of the same opinion myself some time back; facts, however, appear to be against us, as we shall see by referring to Table XIII.

TABLE XIII.—*Showing Classification of South Australian Flocks,* 1908-1914.

Size of Flocks.	Number of Flocks.						
	1908.	1909.	1910.	1911.	1912.	1913.	1914.
Under 500	6,716	6,893	7,035	7,211	7,154	7,160	6,775
501 to 1,000	1,157	1,113	1,047	1,027	933	797	641
1,001 to 2,000 .. .	487	484	505	466	434	438	317
2,001 to 5,000 .. .	257	237	245	267	252	224	194
5,001 to 10,000 ..	98	100	96	88	83	85	74
10,001 to 20,000 .	41	39	52	46	44	38	37
20,001 to 50,000 .	34	34	32	30	25	22	15
50,001 to 100,000 .	7	3	4	5	4	5	5
Number of Flocks	8,797	8,903	9,016	9,140	8,929	8,769	8,058

From this table we see, by assuming that farmers' flocks are those below 1,000 in numbers, that very little progress has been made since 1908—indeed, if anything, there has been a falling off. It is an extraordinary fact, too, that the total number of our flocks in 1914 is as low as 8,058, the lowest on record for a period of seven years. You may, perhaps, ask what reasons I have for emphasizing these facts in a mallee district that cannot yet be said to have entered upon regular farming practices. My reply is that I believe that the sooner these mallee districts are in a position to take up livestock, and particularly sheep, the sooner will they enter upon a period of definite and stable prosperity. I am, of course, aware of the difficulties before you. I know that your land has not yet been generally cleared, that it is not fenced, that it is not adequately subdivided, that it has not yet been provided with water in numerous paddocks, &c. All these are things which you have to carry out in the future; but the sooner you are able to take them up, the sooner you will be able to say that your farming is a good paying proposition.

I had the curiosity to endeavor to ascertain what was the livestock position in the four original Pinnaroo hundreds, comprising County Chandos. These figures are summarised below in Table XIV., and whilst they are not, as yet, very imposing, I trust that with energy and enterprise another nought may be added to them in the course of the next five years.

TABLE XIV.—*Showing Livestock in County Chandos (Hundreds of Pinnaroo, Parilla, Bews, and Cotton),* 1906-1915.

Year.	Horses.	Cattle.	Sheep.	Pigs.	Goats.
1906	510	149	358	172	—
1907	1,188	378	—	212	—
1908	1,972	443	18	528	—
1909	2,990	743	55	1,003	3
1910	4,813	1,297	232	1,917	—
1911	5,416	1,267	787	1,907	—
1912	5,286	1,175	1,810	908	—
1913	5,385	1,530	3,609	1,153	1
1914	5,201	1,292	3,990	1,251	—
1915	4,969	1,369	3,905	1,205	10

I wish to emphasize the fact that your average crops will show marked improvements as a result of the presence of sheep on your farms. Sheep will render possible more varied forms of cropping; your district will carry forage crops to advantage when sheep are available to convert them into flesh and wool. And these crops, in their turn, will react favorably on the wheat crops that follow in their wake.

No doubt there is much to be learnt in the profitable handling of farm flocks; and I trust that those among you whose land is adequately cleared, and whose circumstances permit of it, will take early steps towards building up flocks. They will be the pioneers, who will show the way to others in the years ahead of us.

In the meanwhile there are several points towards which your attention should be directed in anticipation of the well being of your future flocks. There are many who appear to believe that sheep cannot thrive unless they have available vast areas over which they can roam. This is an error; indeed, it is the simplest means for walking off their condition. Whatever may be the case on stations, farm sheep thrive best when the fields are numerous and relatively small. They should be given frequent changes of pasture, and on a farm this is possible only when fields are small and numerous. If sheep are crowded on to small paddocks, available feed is utilised more thoroughly, and the fields can be given periodic rests to sweeten and recover. Moreover, it is quite impossible to use forage crops to best advantage unless the latter are sown in small, easily handled fields. The mere fact of adequately subdividing a farm adds materially to its sheep-carrying capacity.

Good water in every paddock is also essential. Fortunately the Pinnaroo district has good underground water, and windmills, tanks, pipes, and troughs can easily bring water to all necessary points. Keep your water troughs clean by frequent scourings, and much disease will be avoided. No animals foul water more readily than sheep.

Then, again, in anticipation of sheep, you should provide all your fields with adequate shelter. Circumstances are compelling you to burn all the timber off the land. This is regrettable, but apparently is unavoidable. If, however, you wish to keep livestock advantageously you must provide them with shelter. Sheep need shelter as much in summer as in winter, and the profit to be derived from them will frequently be in proportion to the shelter provided. At lambing time heavy losses are unavoidable if the lambs are exposed, without protection, to the fury of the weather. I am endeavoring to set an example on all Government farms, and hope you will realise early that it is your business, as future stockmen, gradually to provide shelter in all your fields.

In reply to Mr. Kelly, the Director stated that in the matter of the purchase of sheep, at the present time we had very little choice. We had to take whatever was available. From the general point of view, however, he looked upon the half-bred long wool ewe as ideal, from the point of view of a farmer's fat lamb flock. Any of the long-wool crosses were suitable—half-bred Lincolns, Leicesters, or Romney-Marsh. These ewes could then be put to any good type of Down ram, such as Southdowns, Shropshires, or Suffolks.

LOCKJAW.

[By F. E. Place, B.V.Sc., M.R.C.V.S., Government Veterinary Lecturer.]

The scientific name for the disease is tetanus, or the disease of sharp muscular spasm. This is better than lockjaw, because the jaws need not be locked; this condition arises on account of their anatomical and physiological formation, namely, the strong natural contractions which keep the jaw closed in health.

The disease is caused by the multiplication of germs known as the *Bacillus tetani,* which may be found in almost any garden, paddock, or dusty road, but which only becomes dangerous under a combination of circumstances which in the main are a lessened power of resistance on the part of the animal, suitable climatic conditions, a wound by which it can enter. The last named may be internal, such as a tooth being cut, or caused by worms. The wound must have only a restricted capacity for air, so it is easy to see how pricks of the feet or deep stake wounds are common precursors of the disease.

In an experimental laboratory a small piece of wood taken from a lockjaw case is inserted once a year, and has been for the last 12 years, into an animal, which each year develops tetanus after. As the disease attacks all domesticated animals and man, it is not one to be treated carelessly. But to reproduce it there must be the three factors, a susceptible animal, tetanus germs, and a wound.

THE SYMPTOMS.

The symptoms do not seem to be so well known as they should be, because in the horse at least they are so distinct that once a man has seen a case, he will be able to recognise another; it must not be thought, however, that all cases present clearly marked symptoms at the outset, for they do not; but once seen, the other symptoms will be looked for.

The animal is stiff in movement, nervous, and when approached quickly or noisily the third eyelid, sometimes called the white of the eye (which it is not), the haw, flicks across the eyeball; the jaws are stiff in movement, and swallowing is difficult, though there is greater difficulty in getting the food as far back as the throat than in swallowing it once there. The symptoms usually increase in severity, and in a very acute case the horse looks as if cut out of a block of wood, and moves all in one piece, the jaws become tightly locked, and after profuse sweating and great agony, the horse dies. He should be mercifully destroyed before such symptoms arise.

THE CURE.

It is often said lockjaw is incurable. This is by no means the case, and Nature provides every animal with a cure, insomuch that in the blood are bodies which render the animal an unfit place for the germs to develop. These are called antibodies, which produce antitoxins, and in this way many animals recover without any treatment—in fact more animals have been killed by treatment than otherwise, such methods as forcing the jaws apart, hypodermic injections of alkaloids, and so forth have never cured, sometimes they have failed to kill.

It is very interesting to read in veterinary papers the surprise of a man who has done nothing and found his patients have recovered, and there is a strong tendency to drop old methods and adopt this expectant attitude.

Can it be that the much-vaunted antitoxin has very little to do with the recoveries in cases where it is used? Scientists tell us that as a curative agent it is not to be relied on, though they agree that as a preventive its use enables the blood to become more actively hostile to the germ.

Epsom salts have also been found to help the blood in this matter, and there is no harm in giving a few ounces in each feed or water to an affected animal—in fact, the percentage of recoveries after their use is large. Give them, and make the beast comfortable in paddock or stable, and give Nature a chance. Castration is a common inlet for the disease, cows frequently suffer after calving, and lambs from tailing. Antiseptics used at such times are a safeguard, and it must always be remembered that dirty instruments can and do carry the disease.

SHEEP ON THE MALLEE FARM.

A striking testimony to the importance and value of sheep on the mallee farm was made by Mr. E. H. Parsons in the course of some remarks made at the recent Conference of Pinnaroo Branches of the Agricultural Bureau. So far as he was aware, he said, sheep constituted the most effective method of destroying young mallee shoots. Apart from that very important consideration, they improved the fertility of the land, assisted in consolidating it, and as to their profitableness, he mentioned that this year he was carrying 100 ewes. From these he had already marked 105 lambs, and some of the ewes were yet to lamb. "No farmer can afford to be without sheep," he concluded, amid applause.

EXPERIMENTAL FARM HARVEST REPORTS.

By W. J. Spafford, Superintendent Experimental Work.

5.—TURRETFIELD EXPERIMENTAL FARM.

Manager: Mr. G. H. Stevens.

This farm is situated in the hundreds of Nuriootpa and Barossa, about 30 miles north of Adelaide, and has an area of 1,573 acres. The North Para River passes through the property, and is joined in its course through the same by Salt Creek. The most of the land is rather steeply undulating, but with the exception of about 150 acres, which is rough and stony, can all be put under cultivation.

The Season 1916.

The year opened with a little more than three-quarters of an inch of rain in January, which is about one-third of an inch more than the average for that month, but still, rain so early in the year plays but little part towards the success of the cereal crop. Both February and March gave but light falls—not enough came down to germinate the weeds on the fallow, with the inevitable result that crops were dirty. April produced an inch of rain, and it was sufficient to produce good seeding conditions; but it was followed by only an inch in May, which is barely half the average at this farm for the month, and not nearly sufficient on such sloping land to give ideal seeding conditions. In June 5½in. were registered—a record for the month since we have kept records (nine years), and practically 2in. better than the wettest June in the above-mentioned period. The wetness of this month put a head on the more or less dirty crops, and killed all chances of good yields, for by running the land together, drowning some of the wheat plants, and encouraging the weeds, the poorness of the patches that were inundated kept the average returns very low. The remainder of the year was fairly ideal for heavy crop production, every month from July onwards, with the single exception of September, producing more rain than the average. The rains being heavy in November and December delayed harvesting operations very considerably, and resulted in all varieties liable to lodging suffering very badly. Details of the monthly distribution of rain at Turretfield since 1908 will be found below, with the monthly means for the period 1908-1916:—

Rainfall Distribution at Turretfield, 1908-1916.

	1908.	1909.	1910.	1911.	1912.	1913.	1914.	1915.	1916.	Means 1908-1
	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.
January	0·55	0·59	1·69	—	—	—	0·21	0·46	0·82	0·48
February	0·28	0·71	—	1·34	0·69	3·12	1·12	0·01	0·08	0·82
March	1·12	0·49	3·83	0·97	0·50	2·32	0·62	0·19	0·56	1·18
April	0·47	2·46	0·08	0·35	1·07	0·25	2·06	1·33	1·03	1·01
May	3·76	3·85	4·57	2·16	0·20	0·54	1·30	3·61	1·08	2·34
June	1·83	2·22	2·41	2·54	2·00	0·12	0·38	3·76	5·51	2·31
July	1·19	3·97	3·42	1·99	3·14	1·53	1·49	1·57	2·00	2·26
August	1·69	5·00	1·61	0·86	3·02	1·71	0·31	1·91	3·43	2·17
September	3·12	1·26	3·12	1·88	3·63	2·81	0·43	4·90	1·55	2·52
October	2·91	2·10	2·98	0·56	1·09	2·39	0·09	1·00	2·08	1·69
November	—	2·39	0·87	—	1·66	1·10	1·41	0·17	3·35	1·22
December	0·26	0·33	1·84	1·53	—	0·88	0·55	0·23	1·22	0·76
Total	17·18	25·37	26·42	14·18	17·00	16·77	9·97	19·14	22·71	18·75
"Useful" rain (April-November)......	14·97	23·25	19·06	10·34	15·81	10·45	7·47	18·25	20·03	15·51

This table shows the "useful" rainfall to be considerably above the average for the nine years, but more information is to be obtained from a study of the distribution of this "useful" rain than from its total. The distribution of "useful" rainfall for the year, together with the mean distribution for the past nine years, is to be seen in the following table:—

Distribution of the "Useful" Rain in 1916 *comparatively with the Means from* 1908 *to* 1916.

	1916. Inches.	Means 1908-1916. Inches.
Seeding rains (April-May)	2.11	3.35
Winter rains (June-July)	7.51	4.56
Spring rains (August-October)	7.06	6.38
Early summer rains (November)	3.35	1.22
Total "useful" rain	20.03	15.51

These figures show comparatively low seeding rains, which, as they followed a fairly dry period, resulted in dirty crops. The winter rains were very heavy, being 3in. above the average for the farm, and were much too heavy to be good for the cereal crops. Both the spring and summer rains were high, but the damage done by the June rains was too heavy to be counteracted by these good falls coming at the latter end of the season.

CROPS.

In previous years practically nothing but the cereals had been attempted at this farm, other than on a very small scale, even the fodder crops grown being cereals. This season a fair area of rape and a little kale were tried in the fields.

Green Forage Crops.—Plot 2 of the lucerne field, containing almost 9 acres, carried Algerian oats last year, the stubble of which was burnt early in 1916. During April 5th and 6th this block was cultivated, cultivator-harrowed, treated with clodbreaker and rolled, and on April 6th had 4lbs. Dwarf Essex rape drilled in, with ½cwt. bonedust to the acre. On this block the rape germinated very well, but hardly did as well as would otherwise have been the case, because much self-sown oats germinated—this was no disadvantage, for although the individual rape plants were not exceptionally large, the mixture of rape and oats produced much and good feed.

The engine plot of the same lucerne field, containing about 8 acres, carried a mixture of barley and oats in 1915. This block was treated in the same way as Plot 2, but had the rape drilled in on April 8th. Here also the self-sown cereals were much in evidence—so much so on this block, particularly after it had been fed off the first time, that it was allowed to mature to a crop for ensilage.

Hill paddock, containing 14½ acres, carried Calcutta oats in 1915, the stubble of which was burnt on April 12th, 1916. On April 14th the block was cultivated, worked with clodbreaker, harrowed and rolled, and on April 16th Dwarf Essex rape at the rate of 4lbs. to the acre, with ½cwt. bonedust, was drilled in. This rape crop did comparatively well, and with the self-sown oats, made a large quantity of feed of good quality.

Dost's field (part), containing 2¾ acres of river flat, carried a crop of barley and oats in 1915. This was ploughed and worked down during April 11th and 12th, and then had drilled into it 1½lb. Thousand-headed kale, with 64lbs. bonedust to the acre. The kale germinated well, but the weed growth prevented any but a very few kale plants from growing as they should have done.

Hill field and a 1-acre field alongside, totalling 7½ acres, were ploughed up and worked down between April 26th and 27th, and were immediately sown with 55lb. Calcutta oats and 55lb. Cape barley to the acre, with 2cwts. superphosphate. The whole was then harrowed. This mixture did really well, producing much green feed for cutting, and then carrying a lot of stock.

Ensilage Crops.—No crop was sown particularly for ensilage, as it was intended that the most suitable green-forage crop would be used for the purpose. The engine plot of the lucerne field was sown with rape, but after being fed off once, the barley and oats were so thick, and started off with such strong growth, that this field was kept free from stock and allowed to develop sufficiently to produce the ensilage. This field, together with the trimmings from the edges of the lucerne plots, gave all that was necessary to fill the silo—in all something about 50 loads.

Hay Crops.—Comparatively little was sown for hay this year, as it is a practice at this farm to cut wide headlands from the fields carrying varieties, and the extent of these headlands is controlled by the hay needed. Field C5, containing about 33 acres, was ploughed in the early part of September, 1915, cultivated early in January, 1916, and again in March. From May 8th to 11th the block was worked with cultivator-harrows and the clodcrusher, and on May 11th and 12th Firbank wheat was drilled in at the rate of 62lbs. seed to the acre on 24½ acres, and the remainder of the field—8½ acres—was drilled in with King's White at the same rate of seeding on the following day; 2cwts. superphosphate to the acre was used in each case. The whole of this block was cut for hay, and with the headlands of all the grain fields produced 276 tons (by stack measurement) of hay from 134.06 acres, for an average yield of 2 tons 1cwt. 20lbs. to the acre. Below will be found in tabular form the hay returns from the farm since 1913, with the mean for the period:—

Hay Returns—Turretfield, 1913-1916.

Year.	Total Rainfall.	"Useful" Rainfall	Area.	Total Yield.			Yeld per Acre.		
	in.	in.	acres.	T.	C.	L.	T.	C.	L.
1913	16.77	10.45	200.00	311	0	0	1	11	0
1914	9.97	7.47	217.00	175	0	0	0	16	14
1915	19.14	18.25	75.26	252	0	0	3	6	108
1916	22.71	20.03	134.06	276	0	0	2	1	20
Means ..	17.15	14 05	—	—			1	18	91

Oat Crops.—No very great area of oats was sown this year, the lot only totalling about 50 acres, and as some of this was very rank and lodged rather badly, it was necessary to cut it for hay; this reduced the area harvested for grain to a little over 20 acres. Field No. 8 carried small blocks of some imported varieties; this carried a crop of hay in 1915, and was ploughed up and worked down early in the year, and was seeded at the rate of 60lbs. to the acre with 2cwts. superphosphate. Field No. 11 was ploughed between July 1st and August 3rd, 1916, was worked as bare fallow throughout the year, and on May 15th Burpee Welcome oats were drilled in 6½ acres, at 60lbs. seed with 2cwts. superphosphate to the acre. Field No. 15 had its ploughing completed by June 16th, 1915, was worked as bare fallow, and on May 5th of this year 20¾ acres were drilled in with Calcutta oats at 65lbs. seed, and 3¾ acres with Burpee Welcome oats at 59lbs. seed, to the acre with 2cwts. superphosphate. Much of the Calcutta oats lodged through the rankness of its growth, and so had to be cut out for hay. The returns from the above-mentioned plots of oats are to be found in the following table, with the averages for the past two seasons, in the next table:—

Oat Varieties at Turretfield, 1916.

Variety.	Field Grown	Area.	Total Yield.	Yield per Acre.
		acres.	bush lbs.	bush. lbs.
Conqueror	No. 8	0.25	10 9	40 36
Dillon	No. 8	0.01	0 16	40 0
Golden Rain	No. 8	0.46	13 2	28 15
Calcutta	No. 15	9.10	212 25	23 15
Burpee Welcome	No. 11	6.32	131 3	20 30
Giant A	No. 8	0.29	5 11	18 8
Burpee Welcome	No. 15	3.41	40 26	11 37
Calcutta (Exp.)	—	2.48	45 20	18 14
Farm average		22.32	458 32	20 22

Oat Returns—Turretfield, 1915-1916.

Year.	Total Rainfall	"Useful" Rainfall.	Area.	Total Yield.	Yield per Acre.
	inches.	inches.	acres.	bush. lbs.	bush. lbs.
1915	19.14	18.25	21.49	576 3	26 23
1916	22.71	20.03	22 32	458 32	20 22
Means	20.92	19.14	—	—	23 22

Barley Crops.—Barley has been grown often at the farm, but always as a forage crop, and not for grain. This year about 15½ acres of Field No. 8 was ploughed and cultivated after a hay crop in 1915, and was drilled in with Cape barley at the rate of 56lbs. seed and 2cwts. superphosphate to the acre. Field No. 17 carried wheat in 1915, and in early June, 1916, this field (about 7 acres) was ploughed, worked down, and sown to Cape barley at 60lbs. seed, with 2cwts. superphosphate to the acre. The returns from the barley crops follow:—

Yield of Barley—Turretfield, 1916.

	Field Grown.	Area.	Total Yield.	Yield per Acre.
		acres.	bush. lbs.	bush. lbs.
Cape	No. 8	15.37	527 46	34 17
Cape	No. 17	6.88	215 15	31 15
Cape (Exp.)	—	2.48	23 42	9 31
Totals		24.73	767 3	31 1

Wheat Crops.—As is usual at this farm, quite a number of varieties of wheat were grown, and in all cases were sown on fallowed land.

Field No. 15 had its ploughing completed by June 16th, 1915, but as it set down rather badly, had to be cross-ploughed with a disc plough in the early part of January. From May 6th to May 8th various varieties were drilled in at 1bush., with 2cwts. superphosphate to the acre. The whole block of about 43 acres was harrowed immediately after the drill.

Field No. 11 carried a wheat crop in 1914, and was ploughed by August 3rd, 1915. This field also set down badly, and had to be cross disc-ploughed at the end of November. A part of the field had to be rolled just previous to drilling in the wheats. Between May 18th and 25th about 60 acres were drilled in with wheats, using 1bush. of seed and 2cwts. superphosphate to the acre. The remaining 63½ acres were drilled in between June 8th and 14th.

Field No. 4 was ploughed by September 13th, and was cross disc-ploughed by January 10th, and was rolled just in front of seeding operations. The whole field, containing about 78 acres, was drilled in with wheats between June 6th and 20th at the rate of 1bush. and 1¾cwts. superphosphate to the acre; all plots were harrowed immediately after the drill. The table below sets out the varieties grown in each of the abovementioned fields, with the yields obtained from all of them:—

Wheat Varieties, Turretfield, 1916.

Variety.	Field Grown.	Area.	Total Yield.		Yield per Acre	
		Acres.	Bush.	lbs.	Bush.	lbs.
Comeback	4	0.26	6	18	24	14
Triumph	15	1.17	25	24	21	43
Red Russian	15	3.20	64	47	20	15
White Essex	11	11.02	220	40	20	1
Le Huguenot	11	20.05	375	58	18	45
Smut Proof	4	0.39	7	4	18	7
Bayah	11	5.37	95	17	17	45
Firbank	4	2.61	44	56	17	13
Federation	15	10.04	169	40	16	54
Marshall's No. 3	11	39.02	598	38	15	21
American No. 8	11	11.49	174	51	15	13
Avoca	4	0.75	11	8	14	51
Leak's Rust Proof	4	4.89	66	23	13	35
Marquis	15	6.97	92	5	13	13
King's White	4	7.16	94	3	13	8
Queen Fan	11	20.66	267	18	12	56
Genoa	11	8.76	101	45	11	37
Zealand Blue	4	0.06	0	40	11	7
Turretfield Eclipse	4	0.88	8	36	9	46
King's Early	4	2.30	22	8	9	37
King's Red	4	2.36	19	30	8	16
Gluyas	4	4.46	27	17	6	7
Yandilla King (Exp.)	—	36.87	507	33	13	46
Yandilla King (Exp.)	—	34.00	658	50	19	23
Totals	—	234.74	3,660	49	15	36

The farm average exposed in the above table is very poor for the farm and the season, and appears to be accounted for mainly by the fact that the crops had not made sufficient headway when the very wet weather set in.

Below will be found the wheat returns for Turretfield since 1912. with the mean for the period 1912-1916:—

Wheat Returns, Turretfield, 1912-1916.

Year.	Total Rainfall. In.	"Useful" Rainfall. In.	Area Acres.	Total-Yield. Bush.	Total-Yield. lbs.	Yield per Acre. Bush.	Yield per Acre. lbs.
1912	17.00	15.81	280.17	5,687	27	20	18
1913	16.77	10.45	185.83	3,159	17	17	0
1914	9.97	7.47	142.75	811	30	5	41
1915	19.14	18.25	277.06	4,451	35	16	4
1916	22.71	20.03	234.74	3,660	49	15	36
Means	17.12	14.40	—	—		14	56

A number of the varieties of wheat have been grown continuously since 1912, and their behavior in the various seasons will be seen set out below, together with those grown continuously since 1913 and a few more recent introductions:—

Yields of Varieties of Wheats, Turretfield, 1912-1915.

Variety.	1912.		1913.		1914.		1915.		1916.		Means, 1912-16.		Means, 1913-16.	
	Bush.	lbs.	Bush.	lbs.	Bush.	lbs.	Bush.	lbs.	Bush.	lbs.	Bush.	lbs.	Bush.	lbs.
Comeback	17	47	23	15	5	45	19	53	24	14	18	11	18	17
Le Huguenot.....	23	40	16	58	4	35	25	36	18	45	17	55	16	28
Gluyas	18	14	21	31	12	46	29	11	6	7	17	34	17	24
Yandilla King ...	24	41	16	58	3	26	17	16	16	27	15	46	13	32
Firbank	22	21	11	37	11	32	11	55	17	13	14	56	13	4
King's Early	21	18	8	51	12	8	22	9	9	37	14	49	13	11
Genoa	22	0	21	14	2	18	11	39	11	37	13	46	11	42
Bayah	13	36	11	49	5	41	19	15	17	45	13	37	13	37
American No. 8 ..	14	48	16	53	7	7	11	57	15	13	13	12	12	47
Triumph	—		23	4	7	25	12	21	21	43	—		16	8
King's White	—		14	44	12	15	15	54	13	8	—		14	0
Marshall's No. 3 ..	—		20	33	7	0	13	5	15	21	—		14	0
Zealand Blue......	—		26	42	1	40	15	60	11	7	—		13	52
King's Red	—		16	44	10	41	14	54	8	16	—		12	39
Leak's Rust Proof	—		—		—		30	43	13	35	—		—	
Queen Fan	—		—		—		31	20	12	56	—		—	
Red Russian	—		—		—		22	45	20	15	—		—	
Turretfield Eclipse	—		—		—		31	32	9	46	—		—	
White Essex	—		—		—		17	3	20	1	—		—	
Marquis	—		—		—		21	57	13	13	—		—	
Federation	—		—		—		14	33	16	54	—		—	
Farm averages ...	20	18	17	0	5	41	16	4	15	36	14	56	13	35
	In.		In.		In.		In.		In.		In.		In.	
Total rainfall	17·00		16·77		9·97		19·14		22·71		17·12		17·15	
"Useful" rainfall	15·81		10·45		7·47		18·25		20·03		14·40		14·05	

EXPERIMENTAL PLOTS.

In 1915 a block of land was divided into several series of rotation plots, but as the land was then unploughed no crops were sown until this year, and these being the first returns obtained, they are little more than yields of cereals with dressings of superphosphate.

Rotation Plots, Turretfield, 1916.

	Grain per Acre.	
	Bush.	lbs.
Series I.—		
Plot 1. Wheat, 2cwts. super.	7	57
Plot 2. Bare fallow.		
Series II.—		
A.—Plot 3. Pasture.		
Plot 4. Bare fallow.		
Plot 5. Wheat without manure	8	40
B.—Plot 6. Pasture.		
Plot 7. Bare fallow.		
Plot 8. Wheat with ½cwt. superphosphate	11	46
C.—Plot 9. Pasture.		
Plot 10. Bare fallow.		
Plot 11. Wheat with 1cwt. superphosphate	12	3
D.—Plot 12. Pasture.		
Plot 13. Bare fallow.		
Plot 14. Wheat with 2cwts. superphosphate	15	1
E.—Plot 15. Pasture..		
Plot 16. Bare fallow.		
Plot 17. Wheat with 3cwts. superphosphate	14	26
Series III.—		
A.—Plot 18. Barley with 1cwt. superphosphate	12	45
Plot 19. Bare fallow.		
Plot 20. Wheat with 2cwts. superphosphate	15	43
B.—Plot 21. Oats with 1cwt. superphosphate	28	30
Plot 22. Bare fallow.		
Plot 23. Wheat with 2cwts. superphosphate	12	26
C.—Plot 24. Peas with 1cwt. superphosphate (grazed).		
Plot 25. Bare fallow.		
Plot 26. Wheat with 2cwts. superphosphate	13	21
D.—Plot 27. Rape with 1cwt. superphosphate (grazed).		
Plot 28. Bare fallow.		
Plot 29. Wheat with 2cwts. superphosphate.	11	14
Series IV.—		
Plot 30. Bare fallow.		
Plot 31. Wheat with lucerne and 2cwts. superphosphate	12	40
Plot 32. Lucerne.		
Plot 33. Lucerne.		
Plot 34. Lucerne.		
Series V.—		
Plot 35. Wheat with 2cwts. superphosphate	17	8
Plot 36. Sorghum in spring		
Series VI.—		
Plot 37. Wheat with 2cwts. superphosphate	14	0
Plot 38. Bare fallow.		
Series VII.—		
A.—Plot 3 . Wheat with 2cwts. superphosphate	13	8
Plot 40. Rye with 1cwt. superphosphate (grazing).		
Plot 41. Bare fallow.		

Rotation Plots, Turretfield, 1916—continued.

	Grain per Acre. Bush.	Grain per Acre. lbs.
Series VII.—continued.		
B.—Plot 42. Wheat with 2cwts. superphosphate	12	17
Plot 43. Oats with 1cwt. superphosphate (grazing).		
Plot 44. Bare fallow.		
C.—Plot 45. Wheat with 2cwts. superphosphate	14	6
Plot 46. Barley with 1cwt. superphosphate (grazing).		
Plot 47. Bare fallow.		
Series VIII.—		
A.—Plot 48. Bare fallow.		
Plot 49. Wheat with 2cwts. superphosphate	16	46
Plot 50. Barley with 1cwt. superphosphate	6	4
Plot 51. Pasture.		
B.—Plot 52. Bare fallow.		
Plot 53. Wheat with 2cwts. superphosphate	20	8
Plot 54. Oats with 1cwt. superphosphate	7	7
Plot 55. Pasture.		
Series IX.—		
Plot 56. Wheat with rye grass and 2cwts. superphosphate	11	28
Plot 57. Bare fallow.		
Plot 58. Rye grass.		
Plot 59. Rye grass.		

Other Crops in Rotation Plots.

Series III.—C.

Plot 24.—Peas with 1cwt. superphosphate. Grazed as follows:—Forty-six sheep from December 23rd to January 11th; 46 sheep from January 19th to 22nd; and 49 sheep from May 31st to June 3rd, making a total of 1,159 sheep days for an area of 1·2835 acres, which equals 2·47 sheep to the acre for a whole year.

Series III.—D.

Plot 27.—Rape with 1cwt. superphosphate. Grazed as follows:—One hundred and seventy-two sheep from October 4th to 8th; 187 sheep from November 11th to 13th 86 sheep from December 18th to 21st; and 46 sheep from January 13th to 16th, making a total of 1,458 sheep days for an area of 1·2835 acres, which equals 3·11 sheep to the acre for a year.

Series V.—

Plot 35.—Sorghum. Total failure.

Series VII.—A.

Plot 40.—Rye with 1cwt. superphosphate. Grazed as follows:—One hundred and seventy-two sheep from October 8th to 13th; 187 sheep from November 13th to 15th; 86 sheep from December 14th to 18th; and 46 sheep from January 16th to 19th, making a total of 1,716 sheep days on an area of 1·2684 acres, which equals 3·71 sheep per acre per year.

Series VII.—B.

Plot 43.—Oats with 1cwt. superphosphate. Grazed as follows:—One hundred and seventy-two sheep from October 13th to 18th; 187 sheep from November 13th to 15th; 86 sheep from December 13th to 14th; and 46 sheep from January 11th to 13th, making a total of 1,412 sheep days on an area of 1·2684 acres, which equals 3·05 sheep per acre per year.

Series VII.—C.

Plot 46.—Barley with 1cwt. superphosphate. Grazed as follows:—One hundred and seventy-two sheep from September 29th to October 4th; 187 sheep from November 11th to 13th; and 86 sheep from December 21st to 23rd, making a total of 1,406 sheep days on an area of 1·2684 acres, which equals 3·04 sheep per acre per year.

	Yield per Acre. Bush.	Yield per Acre. lbs.
Series II.—		
A Plot 3—Wheat without manure	7	7
B. Plot 6—Wheat with ½cwt. superphosphate	10	47
C. Plot 9—Wheat with 1cwt. superphosphate	9	13
D. Plot 12—Wheat with 2cwts. superphosphate	11	18
E. Plot 15—Wheat with 3cwts. superphosphate	14	5

Other Crops in Rotation Plots—continued.

	Yield per Acre. Bush.	Lbs.
Series IV.—		
Plot 32—Wheat with 2cwts. superphosphate	12	14
Plot 33—Wheat with 2cwts. superphosphate	15	50
Plot 34—Wheat with 2cwts. superphosphate	16	33
Series VIII.—		
A. Plot 51—Wheat with 2cwts. superphosphate	13	49
B. Plot 55—Wheat with 2cwts. superphosphate	18	12
Series IX.—		
Plot 58—Wheat with 2cwts. superphosphate	20	7

Seed in Rotation Plots, 1916.

Wheat—Yandilla King, 60lbs. per acre ; Barley—Cape, 55lbs. per acre ; Oats—Calcutta, 55lbs. per acre ; Peas—Early Dun, 100lbs. per acre ; Rape—Dwarf Essex, 4lbs. per acre ; Lucerne—Hunter River, 6lbs. per acre ; Rye Grass—Italian, 10lbs. per acre ; Sorghum—Early Amber Cane, 7lbs. per acre.

PERMANENT MANURIAL PLOTS.—TURRETFIELD, 1916.

In 1915 a set of permanent manurial plots were surveyed, so that the experiments will be conducted on the bare fallow-wheat system, and one part was worked as bare fallow that year and cropped this year, whilst the other portion was bare-fallowed in 1916. Yandilla King wheat was used in all cases, and the results obtained, although only for a single season, are comparable one with the other for the particular conditions that obtained.

Plot.	Manuring per Acre.	Grain per Acre. Bush.	lbs.
1.	½cwt. superphosphate	21	41
2.	1cwt. superphosphate	19	7
3.	2cwts. superphosphate	22	1
4.	3cwts. superphosphate	19	10
5.	No manure	18	52
6.	1cwt. superphosphate, ½cwt. nitrate of soda (spring)	20	16
7.	2cwts. superphosphate, ½cwt. nitrate of soda (spring)	22	4
8.	1cwt. superphosphate, ½cwt. sulphate of ammonia (seeding)	22	59
9.	2cwts. superphosphate, ½cwt. sulphate of ammonia (seeding)	21	56
10.	1cwt. superphosphate, ½cwt. sulphate of potash (seeding)	21	43
11.	2cwts. superphosphate, ½cwt. sulphate of potash (seeding)	25	36
12.	2cwts. superphosphate, ½cwt. sulphate of potash (seeding), ½cwt. nitrate of soda (spring)	23	10
13.	1cwt. superphosphate	23	7
14.	No manure	18	36
15.	1cwt. basic slag	20	10
16.	2cwts. basic slag	18	58
17.	10 tons farmyard manure	22	58
18.	10 tons farmyard manure, 2cwts. superphosphote	20	27
19.	10 tons farmyard manure, 2cwts. superphosphate, ½cwt. sulphate of potash	22	12
20.	2cwts. superphosphate, 4cwts. gypsum	20	48
21.	2cwts. superphosphate, 5cwts. lime	20	11
22.	2cwts. superphosphate (half at ploughing)	19	33
23.	2cwts. superphosphate (half at ploughing), ½cwt. nitrate of soda	23	26

Permanent Cultivation Plots, Turretfield, 1916.

In 1915 a series of cultivation plots, having as their object different methods of treating bare fallow, were commenced, and they carried their first crops in 1916. They are worked on bare fallow-wheat system, and received 2cwts. superphosphate to the acre. This season they all carried Yandilla King wheat, with the following results:—

Plot.	Treatment.	Yield per Acre. Bush.	lbs.
	Early Fallow (June-July).		
24.	Ploughed 6in. deep and harrowed within a few days. Cultivated or harrowed whenever weeds or a crust render necessary	19	31
25.	Ploughed 6in. deep and left rough throughout the winter. Cultivated or harrowed whenever weeds or a crust render necessary	22	6
26.	Ploughed 6in. deep and rolled within a few days, and cultivated or harrowed according to circumstances. Cultivated or harrowed whenever weeds or a crust render necessary	25	14
27.	Ploughed 6in. deep and skim ploughed after first rain. Cultivated or harrowed whenever weeds or a crust render necessary	15	17
	Late Fallow (September).		
28.	Ploughed 3in. deep and cultivated according to requirements, but not rolled	10	57
29.	Ploughed 6in. deep and heavily rolled the same day as ploughed. Cultivated according to requirements	9	40
	Autumn Ploughing (March or April).		
30.	Not bare-fallowed, but ploughed 4in. deep and immediately rolled. Cultivated according to requirements	8	34

Permanent Depth of Ploughing Plots, Turretfield, 1916.

Besides the above series of cultivation plots, a further series of depth of ploughing plots was started at the same time, on the bare fallow-wheat system, using 2cwts. superphosphate to the acre with the crop. The first crop was grown in 1916, and Yandilla King wheat was used throughout the series.

Plot.	Depth of Ploughing.	Yield per Acre. Bush.	lbs.
31.	Ploughed 3in. deep	12	37
32.	Ploughed 6in. deep	14	33
33.	Ploughed 9in. deep	15	35
34.	Ploughed 9in. deep (to be then twice ploughed 3in. before again being ploughed 9in.)	15	45

OUR FUTURE DEPENDENCE ON IRRIGATION.

"We are not as yet a people of irrigationists. We have almost everything to learn; and, above all, our new settlers have to acquire that love of their occupation and determination to succeed which will ultimately lead them to the level of others who, in the matter of irrigation, are to-day drawing on the cumulated experience of many centuries."

The Director of Agriculture (Professor Arthur J. Perkins), in the annual report of the Department of Agriculture for the year ended June 30th, 1916, refers to the important part which irrigation is likely to play in the future development of South Australia. He says:—

It is a fact of universal experience that, apart from incidental cultural operations, the successful garnering of the fruits of the earth is controlled by three chief factors—soil conditions, warmth, and moisture. General local experience, on the other hand, has taught us that whilst for the most part the influence of the first two is favorable to our crops, periodical droughts, and particularly our 1914 experiences, show that we cannot place implicit faith in the third factor. It would appear to follow, therefore, that, given its economic feasibility, we have every interest in fostering the practice of artificial irrigation. It is highly significant that under climatic conditions such as our own the earlier centres of civilisation clustered around irrigation settlements, such as those of Egypt and Mesopotamia, whilst adjoining wastes were abandoned to the flocks and herds of nomadic huntsmen. In Australia, generally, we have chosen to reverse this process of settlement. We have invaded the wilderness first, and even at the present day have not made up our minds very definitely as to whether or not it pays to irrigate. There are, no doubt, many sound reasons for the economic position that has been created, and among them we may quote a natural desire to settle rapidly vast vacant areas which we claimed as our own, initial paucity of labor, and the fact, perhaps, that the art of irrigation is not among our inherited racial instincts. Now, however, that these vacant spaces have been nominally occupied, we find ourselves at the parting of the ways, and in our efforts at closer settlement we are endeavoring to render effective the first hasty occupation. And surely, in this direction and under our particular conditions of climate, closer settlement can find no more potent ally than irrigation adequately and efficiently applied. Much, no doubt, has already been done on the banks of the Murray. Infinitely more, however, remains yet to be done, both there and elsewhere. I may, perhaps, be permitted to state here that it behoves us as a community to realise that initial failures in irrigation are as unavoidable as in any other novel occupation. We are not as yet a people of irrigationists. We have almost everything to learn; and, above all, our new settlers have to acquire that love of their occupation and determination to succeed which will ultimately lead them to the level of others who, in the matter of irrigation, are to-day drawing on the cumulated experience of many centuries.

The Department of Agriculture has been promised a swamp farm on the reaches of the Lower Murray, and I trust that we shall soon be put in possession. Under our conditions of climate "drainage" is of utmost importance whenever artificial irrigation is resorted to; hence, if we are to be responsible for results secured on the State Irrigation Farm we must have complete control of its drainage system. It follows, therefore, that a small reclaimed swamp, the surplus blocks of which might be allotted to others, should be placed under the control of the Department of Agriculture.

I do not think that the importance of opening a State irrigation farm on the Murray at an early date can be overstated. I have already stated that, as a people, we have no fund of irrigation experience to draw upon; and, in present circumstances, it is very questionable whether these rich swamp lands are being used to anything like best advantage. Settlers appear to have pinned their faith to lucerne, and to imagine that it represents the most profitable crop they could raise. Unquestionably, in ordinary circumstances, lucerne presents many advantages, the most attractive of which is, perhaps, the fact that once established it can be handled with a minimum of labor. Such an ideal, however, is not the ideal of closer settlement, and particularly not that of successful irrigation which, as a rule, cries out for as much hand labor as can be mustered. Moreover, in the swamps we are not dealing with average irrigation land, but with land of exceptional fertility, from which maximum results cannot be secured by the deliberate choice of a crop calling for a minimum of labor. In Egypt nobody attempts to grow lucerne; the land is deemed too valuable for a crop of this kind. For greater profits are derived from two annual crops raised in one year. On the Murray Swamps the capital value of reclaimed land is very high; its potential value is even greater; and it is of great importance to the State that this land should be exploited to best possible advantage. On the other hand, it cannot be expected that new settlers, more or less ignorant of irrigation practice, and without any surplus capital, should be in a position to undertake costly experiments towards determining the most profitable type of cropping on these swamps. This is work coming within the province of the State Irrigation Farm, which I trust may be given concrete existence at an early date.

Although in present circumstances I do not propose discussing what would appear to be the most profitable method of handling the reclaimed swamp lands, it seems advisable to state that, given the requisite skill, certain types of vegetables could not possibly be grown to better advantage than on these swamp lands. And, moreover, vegetable-growing presents the great advantage of concentrating labor on small areas of land, which is one of the prime requirements of irrigated culture. True, our population is but limited, and its demands for fresh vegetables would soon be overtaken; indeed, very few acres of swamp land under vegetables would bring us face to face with the problem of over-production. The opening up of State or co-operative canning factories would, on the other hand, besides offering a satisfactory solution to this problem, find suitable employment for a limited number of disabled returned soldiers.

Whilst in ordinary circumstances success in irrigation settlement implies the development of compact, self-centred colonies like those which are gradually being built up on the banks of the Murray, there are, on the other hand, occasional cases in which irrigation can be successfully practised by isolated individuals, I am inclined to the belief that in many portions of the South-East natural conditions are all in favor of solitary irrigationists of this type. This portion of the State we know frequently suffers from excessive winter rains and defective drainage, both of which conditions are apt to detract from the value of winter sowings; whilst summer rains, on the other hand, are not sufficiently regular to insure the success of spring-grown crops. Fortunately, from this point of view, in many parts of these districts excellent irrigation water is to be had for the pumping at a few feet from the surface. Little or no advantage is being taken of these conditions, which might, I am persuaded, be very profitably utilized in summer irrigation. In this connection I have in view among other things the growing of maize for corn crops, an industry which is at present confined mainly to Queensland and New South Wales, where it is dependent on the vagaries of summer monsoons. I am satisfied that maize could be grown for corn to great advantage in the South-East wherever good underground waters are readily accessible, and I trust in time to be in a position to demonstrate the fact beyond possible cavil.

MILK FEVER.

The numerous inquiries concerning the disease in cows known as milk fever are the cause of this note. The name is unfortunate, because it is not a fever, and is not directly concerned with the milk, as has often been pointed out before; the old name, "The drop," is better.

An easy lymphatic cow, at the third or fourth calving, has an easy, quick delivery, and the blood that has been supplying the calf should, in the ordinary course of events, be diverted to the udder, says the Veterinary Lecturer (Mr. Place). The sudden loss of the calf causes a partial vacuum, and there is a back draught of blood to the large vessels of the abdomen, which also drains the brain of its supply, and the symptoms follow. Paddling with the hind feet becomes a stagger, till she drops and lies unconscious. This may happen any time during the first 48 hours after calving. If such symptoms occur at other times, they are generally due to brain troubles, not to this affection. Many cows do not go right down, but are staggery for some hours.

TREATMENT.

The broad lines of treatment are:—Preventive—Dry off for a month before calving, and keep hard and poor during that time, so that the muscles may be in good tone at birth. See that constipation is avoided by feed, or, if necessary, by a laxative drench of Epsom salts or molasses. To milk a heavy milker before calving is a certain way to bring on an attack.

Curative treatment, when the cow is down—Do not milk her out, but fill each quarter tightly with air by means of a special outfit or a bicycle pump; massage the udder well as the air is pumped in, and if the teats are slack tie with broad tape (this is seldom necessary). Prop the cow on her breast, and make her comfortable in that position. As a rule, in as many hours as she has been down, in so many will she get up; but occasionally, in a protracted case, she will have to be pumped up again.

A correspondent asks how to prevent drench going into the lungs. This is the easiest thing in the world—Do not drench. The throat is paralysed, and anything poured down meanders where it will. Occasionally, after a very severe attack, one or more legs may remain paralysed. In such a case, well rub it every day and give 20 drops tr. nux vomica three times a day. Slinging a cow is a silly business; she is much more comfortable lying down on a good bed and having her position changed twice a day.

If a cow is treated as suggested before calving, and left with the calf for 24 hours after calving, and not stripped out, she is not likely to go down.

THE AGRICULTURAL BUREAU.

CONFERENCE OF PINNAROO LINE BRANCHES.

The Annual Conference of the Pinnaroo Line Branches of the Agricultural Bureau was held at Pinnaroo on Wednesday, August 29th, 1917. The Department of Agriculture was represented by the Director of Agriculture (Professor A. J. Perkins), the Poultry Expert (Mr. D. F. Laurie), and the Acting Secretary of the Advisory Board (Mr. H. J. Finnis). The following gentlemen attended as members from the undermentioned Branches:—Geranium—W. Stacey, F. Norton, W. Hammond; Parrakie—J. G. Temby, C. Millstead, F. W. Gravestocks; Wilkawatt—W. Neville, E. Altus, D. F. Bowman, W. J. Tylor; Lameroo—G. Hayman, W. Morcom, F. W. Eime, E. J. Trowbridge; Clanfield—H. A. Maynard, F. G. Moar; Parilla—G. E. Gregory, J. A. Darby, P. J. Browne; Claypan Bore—S. Gray, J. Gray, G. W. Small, H. C. Colwill; Rosy Pine—C. Lee, A. Camens, C. A. E. Schiller, M. A. McCabe; Parilla Well—F. C. Webster, C. Leach, J. S. Ferguson, J. W. Johnson; Pinnaroo—J. Scales, F. G. Bonnin, R. Edwards, B. L. Harfield.

The chair was occupied by Mr. P. J. Edwards, of the Pinnaroo Branch, who extended a hearty welcome to the visitors.

Opening Address.

Professor A. J. Perkins (Director of Agriculture) in opening the proceedings, after apologising for the absence of the Minister of Agriculture (Hon. R. P. Blundell, M.P.), and the Chairman of the Advisory Board (Mr. Geo. Jeffrey), congratulated members on the good attendance, and said that farmers should more fully realise what an exceptionally fine institution they had at their disposal in the Agricultural Bureau. The meeting together of the foremost farmers in each district, and the discussion of subjects of timely interest did much to forward the progress of agriculture. There were now nearly 200 Branches of the Agricultural Bureau, and recognising the benefits to be derived, special efforts should be made to increase interest in the workings of the Branches.

Disposal of Wheat in Normal Times.

A paper written by Mr. W. D. Cowley, of the Lameroo Branch, was read by Mr. G. Hayman. In the course of the paper Mr. Cowley said—"Our methods of farming have been supplanted by the adoption of new and scientific ideas, especially during the last 10 to 15 years. By many, new ideas are received with a certain amount of suspicion, to say nothing of derision and ridicule. We have made enormous strides in the production of wheat, &c., but can we honestly say that we have even attempted to improve upon the old and obsolete methods of disposing of our crops? The answer to that question is certainly no. Another question is, does the existing system for the sale of grain, &c., meet all our requirements and return us a fair price? The answer must also be no. Well, then, being dissatisfied with the present system, is it not necessary to look about us for some other means by means of which our products will be marketed in such a manner, that they will command better prices, and do away entirely with merchants' profits, etc. To my mind the most suitable suggestion is co-operation. But before enlarging upon my scheme it must be clearly understood that no society, organization, or company, no matter how welded together, will have the slightest chance of success, unless it is efficiently managed. A co-operative concern would not only dispose of the primary producers' products, but should be so constituted as to afford the shareholders financial assistance. Farmers as a rule are paid only once a year, while on the other hand they are compelled to meet every month their outgoing expenses. Thus a farmer has many creditors, who must be paid, and these at times force him to dispose of his crop in advance at a price which in reality is a gamble. A farmer who is a member of an organization, or co-operative company, has only one creditor, who would advance him sufficient against grain, produce, and stock, &c., to meet his urgent requirements. A truly co-operative concern would thus not only sell the farmer's products to the best advantage in the world's markets, but would buy for him also direct from the manufacturer all his requirements, thus saving expenses, profits, and commissions each way. Now the question is what scheme in a small way could be adopted here, say in Lameroo, that would demonstrate the benefits to be derived (if any) to the shareholders, by co-operation. For this purpose I will take a small number only, so that figures will not in any way become too large, or embarrassing. Of course this will only take a rough outline, and not (let it be clearly understood) enter into the working details of management, &c. Therefore I will take, say 20 farmers, who pool 1,000 bags of wheat each—20,000 bags. The wheat would be sent to the pool's representative, say, through the Commonwealth Bank, who would charter a vessel or two to load at Port Adelaide, and also obtain an offer for cargo, say January, February, or March, and taking London normal price at, say, 7s. per bushel, this would work out as follows:—20,000 bags = 64,000bush. = 8,000qrs. at 56s. per qr., London value, £22,400; less 1 per cent. brokerage, £224; insurance, 1½ per cent., £336; freight, 37s. per ton, £1,457 2s.; exchange, 1 per cent., £203; 1d. per bushel wharfage, cartage, handling at Port Adelaide, £250; freight, Lameroo to Port Adelaide, as at present, 1s. 3d. per bag, £1,250; total, £3,720 2s., leaving a credit balance of £18,679 18s. This means that the shareholders in the pool would receive over 5s. per bushel for their wheat. When wheat is 7s. in London at ordinary times, local agents will offer 3s. to 3s. 3d., or perhaps 3s. 6d. if they urgently require a parcel to fill space on some vessel outward bound. The difference in these figures of 3s. 3d. to 5s. will in a way give some idea how big fortunes are made, at the expense of the primary producer, and again, what advantages there are to be gained by co-operation. Having given these figures and explanation of a small co-operative company, you might ask the question, can I name any organization of primary producers that has in the past made an undoubted success of co-operation in a large way, and that stands to-day a living example of co-operative success? For some years past I have followed with interest the reports and balance-sheets of the Farmers' Co-operative Association, of Canterbury, Limited, of New Zealand, which was organized some 35 years ago, managed by the late Charles Ensor. These were its objects.—1. To facilitate the storing, shipment, and sale of produce. 2. To make advances to shareholders. 3. To provide shareholders with tools of trade, machinery, bags, seed, &c. The association was a big success from the very start, and when the company was 15 years old, 2,838 shareholders on their half million turnover earned £22,000, received 10 per cent. on their capital, 4 per cent. bonus, and on goods 25 per cent. rebate commission, and had up to that time accumulated reserves of £17,079, which, of course, was used in the business. The association advance to shareholders against stock, grain, and produce is one of the chief features. In the year 1915 the total advance stood at £493,994, compared with £211,504 seven years ago. Now the large advance made in 1915 of nearly half a million pounds, is very significant, being the year succeeding the drought. We as farmers, in 1915, borrowed from the Government three-quarters of a million; how much better for us, had we been in a position to borrow from our own company, as was done in New Zealand. I could give further details of this co-operative company's figures, which speak so loudly of the company's financial stability, but the most striking feature of the tremendous growth, is the reserves, which from £67,991 in 1909, have leaped to over £145,000 at present. How much better at the end of the year farmers would be, if they could effect a saving on their purchases of 5 per cent., or 30 per cent. on selling commissions, and 8½ per cent. on capital invested in a co-operative company. This is exactly what the Co-operative Canterbury Company are doing for its farmer shareholders. I have taken this company in support of my contention that co-operation for farmers in the disposal of their products is proof that better financial returns and remuneration can reasonably be expected, than from the present system of selling direct to local merchants, and I also contend that what has been accomplished in New Zealand amongst the farmers, can also be repeated here in South Australia.''

Mr. F. Norton (Geranium) thought too many middle men had the handling of the products of the farm. Many other trades were organized, and farmers should adopt similar methods.

Mr. D. F. Bowman (Wilkawatt) supported the paper, and said farmers should organize into one large body, which would enable them to obtain mutual benefits. Mr. F. G. Bonnin (Pinnaroo) congratulated the writer of the paper, and said the system was one that must sooner or later be employed. The Director of Agriculture (Professor A. J. Perkins) had heard many discussions on that topic, and he advised members, if they were agreed on the principle, and desired to put it into operation, first of all to start the movement locally, and in the event of it being a success, other districts would readily fall in with them. Thus one large body could be formed.

Mr. F. H. Edwards (Pinnaroo) expressed himself as a firm believer in co-operation. If the idea were commenced in a small way, results could be shown that would convince outsiders that there was something in the principle well worth their consideration. Co-operation was essential to make a success of present-day farming. Mr. F. W. Eime (Lameroo) referred to business co-operative societies in that district as an example.

The following resolution was proposed by Mr. F. Norton (Geranium)—"That a committee be formed to go into the question of co-operation, as best suited to the farmers in the county of Chandos." Seconded by Mr. W. Stacey (Pinnaroo), and carried unanimously.

Messrs. W. H. Kelly (Pinnaroo) and G. Gregory (Parilla) also spoke in favor of the motion. Mr. W. J. Troubridge (Lameroo) proposed that two members from each Branch be chosen to act as a committee, and that the meetings be held at Lameroo. Seconded by Mr. F. H. Edwards (Pinnaroo) and carried unanimously.

POULTRY.

Mr. D. F. Laurie (Poultry Expert) delivered on address on matters relating to poultry on the farm. In the future there would be a big market for the export of eggs to those countries that had been devastated through the war. There was no need for eggs to be sold at exceptionally low prices. They could be stored at the Government Produce Department. He emphasized the need for collecting the eggs daily. Dealing with the interstate export trade he said the eggs shipped from Adelaide were in Sydney classed as "case eggs," which was the lowest grade. He favored the White Leghorn as the breed of fowl for egg production, and Rhode Island Reds were very suitable for farm purposes. The birds should be housed at night. The lecturer then dealt with various ailments of poultry. Roup was a disease of the respiratory organs, he said, and care should be taken not to have roupy fowls about the premises on account of the diphtheria germs which were invariably connected with this disease. To dip the head of the affected bird into a solution of permanganate of potash was the only likely remedy, and if that failed to give effect in three days' time the bird should be killed. For chicken pox a solution of 1 per cent. formalin, or 5 per cent. carbolised glycerine should be used. After having tried almost every advertised remedy for the eradication of tick he had found kerosine used liberally in the infested places to be the cheapest and best method.

SUMMER V. WINTER FALLOWING.

Mr. C. Lee (Rosy Pine Branch) read a short paper on this subject. He said the land was carrying more grass each year, and early sown crops suffered from the grass and weeds, which robbed the wheat plant of the manure that had been sown. He therefore favored fallowing during the months of February and March instead of June and July. He contended that six horses could do as much work in March as eight horses would do in July, and they would look better for the feed they would get. Every farmer knew that the sooner the stumps were out of his land the sooner would he secure good returns, and more stumps would pull out as a result of early fallowing. A better germination of weeds and rubbish would result, and farmers would have at least two extra months feed on the fallowed land for sheep and lambs. He advocated sowing 10 or 20 acres with clover in March, and ploughing it under for manure in August to increase the humus contents of the soil. Mr. W. J. Troubridge said summer fallowing was likely to result in the crop being affected with take-all. Mr. F. Norton (Geranium) agreed with the previous speaker, and said more stumps could be pulled out in summer time. Mr. G. Hayman (Lameroo) agreed with Mr. Lee that when stumps were cleared and the land packed down by rolling, take-all would not be troublesome. Mr. J. Gray (Claypan Bore) did not think dry fallowing was practicable on account of the very stiff nature of some of the soils. Mr. D. F. Bowman (Wilkawatt) believed dry fallowing would be much harder on the horses on account of the dust. Professor Perkins was of the opinion that fallowing should be done during the winter months. Ploughing in the summer months was much harder on the horses. It would be almost impossible to work land that had lain out for a number of seasons in summer. Mr. F. W. Eime said he had had good results from a block of 100 acres that had been fallowed in summer.

THE NECESSITY FOR VERMIN-PROOF FENCING THE SOUTH BOUNDARY OF THE PINNAROO COUNTRY.

Mr. A. Schiller (Rosy Pine Branch) read a paper on this question, in which he said that there was a stretch of approximately 70 to 80 miles of country running on the south side of the surveyed land which was a breeding ground for all kinds of vermin. Occasional bush fires raged through that tract of land, which only served to provide rabbits with better feed, but when the herbage became scarce they migrated and attacked the wheat crops. The wild dog was following in the wake of the rabbit. Every one recognised the necessity for keeping sheep in the Pinnaroo country, but to keep sheep it was essential that they should have protection from the ravages of the wild dog. It was unprofitable to yard sheep at night as they did not thrive nearly so well. Vermin-proof fencing of individual holdings had been suggested, but the material used to fence one or two holdings would go a long way towards fencing the outside boundary. In his opinion the present vermin-proof fence on the Victorian border should be repaired for at least six miles from the south-east corner of the hundred of Pinnaroo well into the settled country. Wire netting was very expensive at present, but that was no reason why preliminary arrangements should not be made to have the fence erected as soon as circumstances permitted.

Mr. D. F. Bowman (Wilkawatt Branch) said that a vermin-proof fence was badly needed. Mr. Bonnin (Pinnaroo Branch) thought that the fence was most necessary if farmers were to be induced to go in for sheep raising. Messrs. Troubridge, Norton, Hayman, Koch, and McKenzie also spoke in favor of the paper.

Mr. C. A. Schiller (Rosy Pine) moved that two delegates from each of the Branches of the Agricultural Bureau situated in the County of Chandos should meet at Lameroo for the purpose of discussing what steps should be taken to have a fence erected. Seconded by Mr. J. S. Scales (Pinnaroo Branch). Carried unanimously.

WHEAT RECEIPTS.

Mr. D. F. Bowman (Wilkawatt Branch) moved—"That in the opinion of this conference it is desirable that agents should supply farmers delivering wheat with receipts showing the weight of individual bags." Seconded by Mr. W. Neville (Wilkawatt), and carried unanimously. Considerable discussion followed this resolution, all members speaking in favor of the motion.

SOUND STALLIONS.

Mr. G. Hayman (Lameroo Branch) moved—"That this conference is of opinion that it is in the interests of the horse breeding industry that no stallion unable to obtain a certificate from a qualified veterinary surgeon be permitted to be used other than for private purposes." Seconded by Mr. S. Gregory (Parilla Branch), and carried unanimously.

In reply to a question as to whether formalin was as effective for pickling wheat as bluestone the Director of Agriculture said formalin was good, but the seed pickled must be used the same day as treated, otherwise it was likely to affect the germination of the seed. Personally he favored bluestone.

HOW TO BUILD UP A DAIRY HERD.

Mr. B. L. Harfield (Pinnaroo Branch), in response to a special request, read a paper dealing with the breeding and management of a dairy herd. This paper has previously been published in the Journal.

In discussing the paper Mr. W. Morcomb (Lameroo) said he was confident that the Pinnaroo districts could raise a dairy herd of very good quality. The districts were well adapted for the dairying industry, as there was a good supply of water, and feed was obtainable nearly all through the year. Mr. W. Troubridge (Lameroo) thought cows were necessary, but care should be taken not to overstock the farm with them. He spoke in favor of the Shorthorn breed of cattle. Mr. D. F. Bowman (Wilkawatt) thought every farmer should have a few good cows on the farm. Mr. D. F. Laurie (Poultry Expert) congratulated the writer on his paper.

EVENING SESSION.

The evening session was opened by the Director of Agriculture (Prof. Arthur J. Perkins), who delivered an address, the report of which is published elsewhere.

VEGETABLE GROWING IN THE MALLEE.

Mr. W. Neville, in a paper on this subject, said:—"In dealing with this subject I purpose confining myself to actual experiences in growing vegetables for the table on a poor white sand rise with a clay subsoil, the sand varying in depth from 12in. to 6in. The soil (or sand) in 1913 was of a very poor quality indeed, but with manuring and working it is rapidly changing, and is now in a very good condition. An analysis of the soil was made by the Department of Agriculture. It was stated that the soil was very poor, and would be greatly benefitted by an application of lime, which, however, has not been done, and the land has produced cabbages up to 15lbs., cauliflowers to 13½lbs. (with all leaves removed), onions 1lb. 6ozs., and potatoes 15ozs., and other vegetables of prime quality. It is necessary to mark out a place for the future garden, allowing 20ft. extra all round, then grub all stumps clean out of the ground, plough it all over to a depth of, say, 6in., and harrow well. The fence, which I would recommend (although perhaps rather costly at present) is one of good strong posts and three wires with 42 by 1½ wire netting on the outside. This should be 20ft. inside the clearing all round, the object of which is that there will not be the trouble with the roots of the mallee. There should be a breakwind, and I find nothing better than a mallee stump wall 4ft. high built inside the fence. By so doing there will be nothing to fear from rabbits, and no trouble with running roots, as there would be if the break was of shrubs, which would also take years to be anyway effective. Having got the proposed garden fenced mark out the beds (which I would recommend not to exceed 10ft. in width) and paths, say, 2ft. 6in. wide; tramp the paths down well, leaving the beds raised and loose. Lay down the water pipes under the main path, nothing less than ¾in., with taps every 20ft. apart. Now place 4in. to 6in. of well rotted stable manure (mixed with fowl manure) on the beds, and dig in well to the depth of the spade, and after raking the bed to make even it can now be planted. My experience in growing vegetables is that one manuring is only necessary every alternate crop. If cabbages and cauliflowers are grown in the newly-manured beds, other kinds, such as potatoes, carrots, parsnips, turnips, and tomatoes will do much better on the ground that has previously been manured. Never use the same bed for the same vegetables twice in succession. I will now endeavor to give a table by which a regular supply of good fresh vegetables may be obtained all the year round. Begin early in January by sowing seeds of early varieties of cabbage and cauliflower, such as Early All-Head, Henderson's Succession, Early Express, and St. John's Day cabbage, and Cox's Excelsior cauliflower, also Swede turnip seeds. These beds should be made in a sheltered position, and should be protected during the heat of the day by means of hessian, or even a few bushes would suffice; water regularly, and when the plants are in their fifth leaf transplant into the newly-manured beds in shallow trenches, 2ft. apart for cabbage and 2ft. 6in. for cauliflower (each way). This may seem to be very far apart when the plants are being put out, but it is essential to good results to give ample room so that the hoe can be used without risks to the plants. Water every day until the young plants have recovered from the transplanting; after that twice a week is sufficient until the early rains. A small bed of French beans (dwarf) can also be put in as a late crop in one of the newly-manured beds, and with a liberal supply of water will be in full bearing in a very short time. On

February 1st plant potatoes that have been well sprouted; Early American Rose, Carmen, or Up to Date being good early varieties. The method I have adopted is to dig the bed over, one spade deep, without manure, water well with a sprinkler, rake surface evenly, mark out lines 2ft. apart, and dig a trench 6in. deep, throwing the soil on one side. At the bottom of the trench sprinkle mineral super. at the rate of 2lbs. to a trench 10ft. or 12ft. long, rake slightly to mix super. and sand, then place sets 12in. apart and fill up and continue until bed is filled. When the young plants appear so that the rows can be traced loosen the soil with the hoe, and give a similar hoeing once a week for a month. After that leave the surface alone, do not bank up, but a mulch of manure or straw will be of much benefit in keeping the surface cool. My reason for advocating this system is that I have grown potatoes (Pink Eyes and Snowflakes) very successfully, having dug 4cwts. from a piece of ground 36ft. by 15ft., in which 28lbs. of seed was sown, or an average of 16 tons 2cwts. per acre. In April sow a few peas (William Hurst) and broad beans for an early result. In May cabbage seed for late crop. Yates Mammoth Drumhead is one of the best to stand the dry hot weather. Lettuce seed also should be distributed in small beds in the open, and the young plants set out later. Sow onion seed in a well-prepared level bed. Mix the seed with wood ashes and distribute evenly, then cover lightly with fine stable manure, and water with fine spray. The seedling when sufficiently grown should be set out in manured beds, say August or September. He favored Brown Spanish and Brown Globe. A few more peas and broad beans could now be sown. In August sow carrots (Early Shorthorn) and parsnips should be sown in drills 9in. to 12in. apart in the deepest soil available in beds not more than 3ft. 6in. wide. Narrow beds were most convenient for weeding and thinning out. On September 1st potatoes should be planted (Pink Eyes, Snowflakes, or Carmen), and to sow tomato seeds in sheltered position for early plants. Operations for October should include the sowing of French beans (dwarf) and Kentucky Wonder (climber), and seed for the main crop of tomatoes (Burwood Prize and Mikado), vegetable marrows, squashs, trombone, melons, and cucumbers. The seed should be planted in well-manured holes, and sow four to six seeds in each, and when plants are well up, all except the two strongest should be removed. Nothing is gained by sowing seed of summer-growing vegetables too early. In November another lot of French beans (dwarf) can be put in, and in December advises still another sowing for late crop results.

Mr. W. Stacey (Geranium) proposed that next conference be held at Lameroo. Seconded by Mr. F. G. Bonnin. Carried unanimously.

Mr. Edwards proposed a vote of thanks to the visitors, which was seconded by Mr. Tylor (Wilkawatt).

POULTRY NOTES.

[By D. F. LAURIE, Government Poultry Expert and Lecturer.]

THE EGG MARKET.

A comparison of prices of eggs on the Adelaide market on September 1st of each of a series of years will prove of interest at the present juncture. On September 1st, 1905, the price was 6½d. ; 1906, 6d. ; 1907, 6¼d. ; 1908, 8d. ; 1909, 8½d. ; 1910, 8d. ; 1911, 8¼d. ; 1912, 9½d. ; 1913, 9¾d. ; 1914, 8¾d. ; 1915, 1s. 3d. ; 1916, 9½d. ; 1917, 7½d. The average market rate for the 13 years is, roughly, 8½d.

The prices current in 1905-6-7 were very low, but were quite usual in former times. These low prices generally ruled until December and sometimes later. As the bulk of the eggs were laid by farm fowls in the spring or early summer, it is evident that there was little profit to the farmers.

The prices current in 1908-9-10-11 showed the steadying effect of the trial shipments made in 1906 and 1907. The improvement in prices was partly due to the fact that there was always an opening available *via* the oversea export trade. There was also more competition by cold storage speculators. The high price in 1915 was a result of the 1914 drought, during which period the poultry flocks of the State were largely depleted. The present price in 1917 reflects the disorganised state of the market, due to the Sydney strike and other factors. It is gratifying to note that the Federal Government has agreed to prohibit the introduction of Chinese eggs. The scarcity of shipping is, of course, responsible for much.

The prospects of an after-war oversea trade in eggs, both in the shell and as pulp, are encouraging, and one can only hope that normal conditions will soon prevail.

TABLE BIRDS.

Table birds have been selling at satisfactory prices during the year. Buyers are more discriminating than formerly, and quality and condition count for more than in the past. There is a good demand for plump, medium-weight chickens—older birds are less popular. It is false economy to market table birds in other than first class condition. When a chicken is well fed at all stages fattening naturally follows. The common mistake is in starving the growing stock, and then expecting that a chicken can be fattened in a few days. Chickens intended for table birds must be well fed and upon suitable foods. Grain alone is neither satisfactory nor sufficient for growth nor for fattening. Bran 1, and pollard 2, with greenfood, mixed and fed as for egg-production, is not of a proper fattening nature. When the chicken has developed a good frame, the mixture may be one part bran and three parts pollard, to which add one-third by bulk of greenfood, gradually lessening the latter as the birds fatten. No greenfood should be given during the last week or 10 days. The addition of a little sweet fat is advantageous.

REARING CHICKENS.

On modern poultry plants the brooders and brooder houses are recognised as, perhaps, the most important features. Incubation has generally proved successful, but the rearing of chickens in large numbers was always the difficulty. Now, with up-to-date brooders, that part of the business is satisfactorily accomplished. Small brooders, kerosine-heated, can easily be made by anyone handy with tools. These can also be used as cold brooders. Plans, free of cost, can be had on application to the Poultry Expert, Adelaide. It is important that for the first few days the chickens should be kept close to the brooder so as to avoid chance of a chill which is generally fatal.

FIRST FEED.

Chickens should not be fed until about 48 hours after hatching. Nature has provided their food during that period, viz., the undigested balance of the egg yolk. Supply them, in the brooder, with fresh, clean water. Floor the brooders with dry, clean sand. Do not overheat the brooders—70 degrees at the end of a week is hot enough.

Feed them on cracked grain (half wheat and half hulled oats), or mix cracked wheat and rolled oats. This should be fed in litter and also in troughs ; in the latter add some grit, charcoal, &c. Dry mash is excellent for young chickens ; it may be bran and pollard, to which add 3 per cent. meat-meal and 5 per cent. granulated charcoal. This should be fed in hoppers.

When a month old the chicks may have one meal daily of wet mash—later they may have two meals daily—but keep to the dry mash hopper, and also the cracked grain scratching mixture. When six weeks old, or as soon as possible, separate the sexes. Each thrives the better for so doing.

Cull vigorously at all seasons. Do not attempt to rear crippled or weakly chickens. Then, as the birds grow, continue culling so that all your efforts may be concentrated upon the first class specimens which are alone worth having.

FRUIT NOMENCLATURE.

THE POMOLOGICAL COMMITTEE OF AUSTRALIA.

(*Continued from page* 55.)

The August issue of the *Journal* contained the first portion of the report of the 1917 meeting of the Pomological Committee of Australia. It was mentioned therein that 420 dishes of fruit were exhibited by members. Dealing with these, the report continues:—

CONSIDERATION OF GENERAL EXHIBITS.

New South Wales Apples.

Duke of Wellington.—Grown at Mount Keira. This apple is of nice appearance, is somewhat like Yates in shape, but of better color. It is a heavy cropper, and said to be blight resistant.

Red Five Crown.—Obtained from Goulburn district exhibit at Royal Show. Raised by Mr. Best, Tanmangaroo. This is a bright streaked apple, with the color extending far into the flesh; is very similar to Coleman's Late Aromatic (Tasmania).

Nigger Head.—Obtained from Goulburn district exhibit at Royal Show. This apple is very dark, much darker than Hoover and much like Arkansas Black.

Goulburn Beauty.—From Goulburn district exhibit at Royal Show. An apple of good color, appearance, and flavor. It was resolved that these apples be kept in view by the New South Wales subcommittee and reported on at the 1918 conference.

Beauty of Australia.—Grown at Mount Keira. Determined to be identical with the South Australian apple of the same name.

Mr. Chilton submitted an apple grown by Mr. Franks, Pennant Hills, and supposed to have been originally obtained from Tasmania. Moved by Mr. Lang, and seconded by Mr. Chilton, that it was identical with Dunn's Favorite.

Mr. Allen submitted specimens of an apple grown by Mr. Wollard, Moorilda. The specimens resembled Cooper's Market, but could not be identified by the committee. Mr. Allen was asked to obtain further specimens for next conference. Two varieties of apples, grown by Mr. Larsen, Stonehenge, were submitted by Mr. Allen. One was a large greenish-yellow apple, very subject to bitter pit, and badly shaped. It was not considered worth growing for commercial purposes. The other, a large yellow apple, was identified as Gloria Mundi. Specimens of an apple planted at Bathurst Experiment Farm as Blondin were submitted. It could not be identified, and was decided to forward specimens to the next conference. Specimens of an apple (supposed to be a seedling) were submitted from F. R. Auberson, March, near Orange. It was not identified, and Mr. Allen was asked to submit further specimens at the next conference.

Lady Hopetoun.—Grown by Mr. W. Grunsell, Parkesbourne. It was decided to have further specimens at next conference, and also to have specimens of the same variety from Victoria.

Tetofsky.—Grown by A. Hunter, The Penang, Gosford. This was determined by the committee to be the Russian apple Tetofsky. It is of poor quality, and is not recommended for planting.

Loddington (described as imported).—Grown by A. Hunter, The Penang, Gosford. This variety was determined to be true to name, but is not recommended by the committee for general planting.

Garabaldi.—Grown by F. R. Auberson, March, near Orange. Decided to be true to name.

Fall Beauty.—Submitted by Mr. Allen. Name possibly correct. Could not be recommended for general planting. Grown by A. Hunter, Gosford.

Mr. Allen submitted an apple forwarded by Messrs. Searl & Co., Sydney. As only one specimen was submitted, it could not be identified. Mr. Chilton submitted an apple obtained from J. A. Wheatcroft, Dunolly, Tasmania, as Alfriston. The Secretary stated that the same apple had been submitted to the conference in 1914, and was identified as Flower of Kent. It was decided that Mr. Ward should obtain all possible information with regard to this apple, and also submit specimens at the next conference. Mr. Lang has also to submit specimens of Flower of Kent, as grown at Harcourt, Victoria. Mr. Chilton submitted another apple obtained from Tasmania. He had no information with regard to the locality from which it came, or of the variety. It was apparently a seedling, and could not be identified by the committee.

Tasmanian Apples.

Blenheim Orange.—Mr. Ward submitted specimens of an apple grown under this name by Messrs. J. Clark & Son, Launceston, Tasmania. It was deferred until 1918 conference, when Mr. Ward would submit further specimens.

Specimens of an unnamed variety resembling Striped Beefing were submitted by Mr. Ward. The specimens were inferior to this variety, and could not be recommended. Grown by Mr. C. Ling, Penguin, Tasmania. Further specimens from the same grower were submitted by Mr. Ward. These resembled Rymer. It was decided to bring this variety up again for consideration at the next conference. Specimens of a late apple were submitted by Mr. Ward. These were grown by Mr. H. Stapleton, Youngtown, Tasmania, and are very similar to Majetin. It was decided to have further specimens for consideration at the 1918 conference. This is considered a good variety and well worth following up. Mr. Ward submitted another variety from the same grower. These were very much like Dutch Mignonne. Further specimens are to be submitted and discussed at the 1918 conference. Specimens of a variety grown as Kirk's Perfection by Mr. C. White, Beaconsfield, Tasmania, were submitted by Mr. Ward. They were identified by the committee as Moss' Incomparable. Mr. Ward submitted specimens from D. Weston, Launceston. These were somewhat decayed and could not be identified. They were probably Twenty Ounce. Mr. Ward is obtaining further specimens for next conference.

PEARS.

From New South Wales.

Mr. Chilton submitted samples of pears grown at Wenona, Capertee, as Beurre de Capiaumont. They could not be identified as this variety. They were very similar to Colmar. Mr. Chilton is to obtain further specimens for next conference. Mr. Chilton also submitted specimens of pears grown by Mr. Perrett, Turramurra. These were identified as Garber's Hybrid. Mr. Allen submitted specimens grown at Yanco and Bathurst Experiment Farms as Josephine de Malines, the tree of which originally came from Victoria. They were not identified by the committee as this variety. They were well thought of, and Mr. Allen was asked to submit further specimens at the 1918 conference. A pear grown by Mr. Peacock, at Kelso, as Callabasse Bosc, was determined to be Callabasse Grosse.

From Tasmania.

Specimens of pears grown by Mr. H. L. Richmond, Glenlusk, Tasmania, as Easter Beurre were submitted by Mr. Chilton. They were similar to Flemish Beauty, and further specimens are to be exhibited by Mr. Ward at the next conference. Specimens of another variety from the same grower were submitted. These were of good quality, and Mr. Ward was asked to obtain all information with regard to them, also further specimens for the 1918 conference. Mr. Chilton submitted a pear grown by Mr. T. P. Lock, Premaydena, Tasmania. This could not be identified, and Mr. Ward was asked to obtain further specimens for next conference. Another pear was submitted from the same grower, and it was also deferred until next year. Mr. Ward submitted pears from C. R. Burnside, Deviot, Tasmania. These were identified as Souvenir du Congres. Further specimens are to be submitted at the next conference, and Mr. Allen is also going to exhibit some of the same variety. A pear grown by Mr. C. Perrin, Launceston, was submitted by Mr. Ward. As only one specimen was exhibited, it could not be identified, and Mr. Ward was asked to obtain further specimens for next meeting.

From South Australia.

Mr. Quinn submitted specimens from a 50-year-old tree in the Government Orchard, Kybybolite, a cool district. These were determined to be Beurre Rance. Further specimens from the same orchard were out of condition and could not be identified. Small russet pears from the same source could not be identified, and were considered too small to be worth consideration. Other large specimens from the same orchard were deferred for consideration until the 1918 conference. Mr. Quinn promised to obtain better specimens of the above varieties for next conference.

Mr. Laffer submitted specimens grown from scions obtained from the Mylor Government Orchard, South Australia. These were considered to be very similar to Nec Plus Meuris, of Van Mons. Mr. Laffer was asked to submit further specimens at the next conference, when specimens of the Nec Plus Meuris would also be exhibited. Mr. Laffer submitted specimens grown by him at Belair, South Australia.

It was suggested that these were Lawrence. He was asked to submit further specimens next year, when the variety Lawrence would also be displayed. Another pear submitted by Mr. Laffer from the same orchard was decided to be Conference.

CHANGE OF NAME.

At previous conferences, the committee decided, for various reasons, to make changes in the nomenclature of certain fruits. The following is a list of the changes made:—

Apples.

Old Name.	New Name.
Five Crown Pippin	London Pippin
Dumelow's Seedling	Dumelow
Democrat	Tasma
Dunn's Seedling	Dunn's Favorite
Munroe's Favorite	
Stewart's Seeding	Stewarts
Schroeder Apfel	Schroeder
Emperor Alexander	Alexander
Trivett's Seedling	Trivett
Mellon's Seedling	Dunolly
Yapeen Seedling	Yapeen
Yeate's Nonpareil	Gowar
Stayman's Winesap	Stayman

Pears.

William's Bon Chretien	Williams
Bartlett	
Duchess	
Napoleon	Vicar of Winkfield
Vicar of Winkfield	
Giblin's Seedling	Giblin's Nelis
Kieffer's Hybrid	Kieffer
Harrington's Victoria	Harrington
Laffer's Nelis	Laffer
Laffer's Bergamot	

Mr. Ward referred to the Tasma apple being sold in Tasmania as Democrat. He moved that the Secretary write to the nurserymen in Tasmania and Victoria, asking them to adopt the name of Tasma, as decided upon by the committee. Seconded by Mr. Lang and carried.

At the 1917 conference, the names of two fruits only were changed. These were—(*a*) The name of the Tasmanian apple Croton was changed to Ranelagh. The name Croton is very like that of the apple Crofton, which is largely grown in Tasmania, and the name Ranelagh was selected as being the district in which this seedling was raised. (*b*) Pomme de Neige.—Mr. Allen moved that as this apple was originally called Fameuse, after the village in Quebec where it was raised, the question of renaming the variety should be considered. Seconded by Mr. Ward.—Carried. After considerable discussion the following motion was moved by Mr. Allen, seconded by Mr. Ward, and carried:— "That the name of the apple known as Pomme de Neige be changed to Fameuse; that in his report the Secretary give a resume of the history of this apple, stating the reason why the name has been changed.

APPLE FAMEUSE.

The apple which is catalogued and so well known throughout Australia, Pomme de Neige, is correctly called Fameuse. It is known and recognised only by this name in America, its country of origin; and following on the decision of the Australian Committee to adopt nomenclature of other lands, the correct name of Fameuse has now been adopted. The history of the Fameuse is somewhat obscure, but it is generally supposed to have been raised at Fameuse, in Canada, from seed brought to Canada from France prior to the year 1700. Among the early references to this apple as Fameuse is found in Forsyth's "Treatise on the Culture and Management of Fruit Trees," the first edition of which was published about 1800. Forsyth there records that this apple was brought from Canada by a Mr. Barclay. The first reference to the apple as De Neige, or Pomme de Neige, occurs in American as well as English horticultural literature 20 or 30 years later. This name, meaning Snow Apple, was given in reference to the snowy whiteness of the flesh.

There was another apple cultivated in Europe as far back as 1628 which carried the name of Pomme de Neige. This was cultivated by the old fruitbreeder Le Lecter, and recorded by Leroy. Leroy said that this certainly was not the Pomme de Neige of Canada. The European Pomme de Neige is catalogued by Diel, after whom the pear Beurre Diel is named, and it is certainly not the Canadian apple. Thus confusion had early arisen, and Hogg as far back as 1851 tried to overcome the difficulty by calling it De Neige, saying at the same time, "This is not the Pomme de Neige of Diel." On account of this confusion, but more on account of the fact that the apple is now universally known in its home of origin by its original name, Fameuse, the committee decided to recognise this name in preference to the French name.

At the 1913-14 meetings the following names were approved of:—

APPLES.

Cleopatra, Scarlet Nonpareil, King of Pippins, Jonathan, Cox's Orange Pippin, Rymer, Shorland Queen, Maiden's Blush, French Crab, Gravenstein, Rokewood, Pomme de Neige, Prince Alfred, McIntosh Red, Twenty Ounce, Lord Daly, Stone Pippin, Alfriston, Lane's Prince Albert, Perfection, Lang's Best, Champion, London Pippin, Adam's Pearmain, Dumelow, Rome Beauty, Peasgood's Nonsuch, Yates, Lord Wolseley, Duke of Clarence, Stateman, Shepherd's Perfection, Reinette de Canada, Worcester Pearmain, Granny Smith, Lord Suffield, Beauty of Bath, Wealthy, Winter Strawberry, Warner's King, Ben Davis, Wagener, Gascoigne's Scarlet, Sutton.

PEARS.

Vicar of Winkfield, Le Lectier, Doyenne du Comice, Giblin's Nelis, Winter Cole, Beurre Bosc, Josephine de Malines, Packham's Triumph, Beurrê D'Anjou, Urbaniste, Durondeau, Conference, Glou Morceau, Duchess D'Angouleme, Winter Nelis, Madame Cole, Elizabeth Cole, Beurre Capiaumont, Howell, Packham's Late, Clapp's Favorite, Beurre Superfin, Thompson's, Beurre Diel.

In regard to fruit nomenclature, the following rules are considered by the committee as urgent:—(1) That the names shall be as simple as possible. (2) That wherever possible, one word only should be used as a name. (3) Duplication of names, or names possessing strong similiarity, is to be avoided. (4) That such words as "seedling" and "hybrid" be abolished from Australian pomology as far as possible. (5) That priority of name, naming or of origin, have preference wherever possible.

Next Meeting.—It was decided that the next conference be held in Adelaide, South Australia, commencing on or about April 15th, 1918.

After votes of thanks to the Minister and Under Secretary for Agriculture, New South Wales, for hospitality extended at Bathurst, the conference closed.

THE POMOLOGICAL COMMITTEE OF AUSTRALIA.

APPLES AND PEARS.

Form of description of specimens and information for Pomological Records.

Section I.

The accompanying specimens of..
were obtained from Mr..............................orchard...............
at..............................grown on ....soil.
Average annual rainfall..
Suggested name ....
Origin..............................age of tree....................
The original tree is still growing at..
Age of tree from which samples were taken..
Worked on..stock.
Habits of growth..
Description of growth..
Description of bark..............................leaf....................
Blossoming date..
Cropping characteristics..
Date of ripening..
Keeping qualities..
Subject to what diseases or pests..
Any other information..
....
....

Signed..
Date....................

Section II.

(To be filled in at Head Office.)

Form ....
Size (in inches)..............................high....................wide.
Color of skin..
Dots, markings, or russets..
Eye.............................. basin....................
Segments ....
Stalk ....cavity....................
Stamens ....tube....................
Core .... axile....................abaxile.
Flesh texture ....color....................
Flavor and quality ....
Used for dessert..............................or....................culinary.

ADVISORY BOARD OF AGRICULTURE.

The monthly meeting of the Advisory Board of Agriculture was held on Wednesday, August 8th, there being present: Messrs. G. Jeffery (Chairman), C. J. Tuckwell (Vice Chairman), Professor A. J. Perkins (Director of Agriculture), Messrs. W. J. Colebatch (Principal of Roseworthy College), T. H. Williams (Chief Inspector of Stock), F. Coleman, A. W. Shillabeer, and H. J. Finnis (Acting Secretary). Apologies were received from Messrs. G. R. Laffer. M.P., A. M. Dawkins, and J. Miller.

NEW MEMBER.

The Chairman took the opportunity of welcoming Mr. A. W. Shillabeer, who attended his first meeting of the Board.

WEIGHING STUMPS AT RAILWAY STATIONS.

The Acting Secretary reported, with reference to the complaint from Geranium regarding the alleged weighing of stumps on the railways while trucks were in motion, that the Railways Commissioner had stated:—"Instructions were given some time ago that trucks were not to be weighed while on the move, and, so far as I am aware, these instructions are being carried out. If specific cases should be cited they will be investigated." The Board decided to send the Commissioner's statement on to the Geranium Branch.

BUTTER - FREIGHTS AND PRICES.

The Chairman (Mr. G. Jeffery) reported having visited Melbourne, in company with the Dairy Expert (Mr. P. H. Suter) and representatives of butter factories, for the purpose of discussing with the Prime Minister the general question of the disposal of dairy produce. Mr. Jeffery expressed a view that, as a result of the conference, steps would be taken to relieve the serious disorganization which threatened that industry.

OVERHEAD SYSTEM OF SPRAYING.

Arising out of a request from the Berri Branch of the Agricultural Bureau, a memorandum was received from the Horticultural Instructor (Mr. G. Quinn), who stated that it was his desire to make a test of some overhead system or systems of irrigating trees, notably citrus, peach, and apricot, at the Berri Irrigation Farm, but he was unable to do so unless funds were granted for the installation of the plant. A minute by the Director of Agriculture (Professor Perkins), appended to the docket, indicated that the support of the Advisory Board would unquestionably strengthen Mr. Quinn's hands. After discussion, it was decided, on the motion of Mr. W. J. Colebatch, to recommend the Government to provide a sufficient sum of money to enable overhead irrigation to be thoroughly tested.

RAIL RATES ON FRUIT SPRAYS.

A suggestion was received from the Beetaloo Valley Branch, to the effect that railway rates for fruit sprays and lubricating oils might be reduced. At the instance of Mr. Tuckwell it was resolved to ask the Railways Commissioner to reduce arsenate of lead from the double-third to the second class.

ALTERATION OF NAME OF BRANCH.

A request from the Forest Range Branch that the name of the Branch should be altered to Lenswood and Forest Range was received. Before considering the matter, the Board decided to ask the reason for the suggested alteration.

COMPULSORY TREATMENT FOR FUNGOID DISEASES.

A resolution was received from the Waikerie Branch asking that steps should be taken to have legislation introduced to enforce spraying and swabbing for black spot and other fungoid diseases, and also spraying against insect pests. It was decided to seek a report on the proposal from the Horticultural Instructor (Mr. G. Quinn).

METHOD OF ISSUING WHEAT CERTIFICATES.

The Pinnaroo Branch of the Agricultural Bureau submitted a proposal, the adoption of which, it was thought, would more adequately protect the interests of farmers in connection with the procedure in issuing wheat certificates. The Board decided to refer this suggestion to the Wheat Harvest Board.

RABBITS ON EYRE'S PENINSULA.

The Minnipa Branch of the Agricultural Bureau drew the attention of the Board to the increase in the number of rabbits on Eyre's Peninsula. In the course of a communication received from the Branch it was stated: "There are 35 sections in this hundred, but at present only six of them are being resided upon, and only six are carrying crops. Two years ago, at the close of the drought, there was scarcely a rabbit in the hundred, but the resident settlers are very apprehensive regarding the future prospects. It is firmly believed that if all the settlers were on their holdings and dealing with the pest the rabbits could be satisfactorily kept within bounds, but, failing this, the settlers here feel sure that they will have to net their properties, and to do that will require considerable financial aid. Members of the Branch will be glad if the Board will take steps to see that the land laws are enforced on absentee landholders, as it is known that the great majority of these gentlemen are not on active service, and should be as well able to work and improve their holdings as those few at present here are to struggle against adverse conditions. Further, the members desire to learn to what extent the Government will assist them to procure rabbit-proof netting. The Branch has approached the Director of Agriculture with a view to have a poison cart placed on the Government Experimental Farm, to be available for hire by the settlers."

Professor Perkins said it appeared as though a number of sections allotted had not been taken up, and that many of these were being held merely for speculation purposes. If the persons to whom the blocks had been allotted were not prepared to reside on them, then the land should be distributed among those who would do so. The absentees could not complain that the land was poor, because, as a matter of fact, it was some of the best on the peninsula. If the land were fully settled the rabbits would soon cease to be a serious problem. Netting, of course, was out of the question under existing conditions. At the instance of Mr. C. J. Tuckwell it was decided to direct the attention of the Commissioner of Crown Lands to the non-observance of the residential clause in respect to certain sections in the central hundreds of Eyre's Peninsula, particularly Minnipa.

Sheep Dips.

The Chief Inspector of Stock (Mr. T. H. Williams) directed attention to a certain non-poisonous dip which had been extensively advertised. "I would like the Board," he proceeded, "to express an opinion that owners of sheep throughout the State, before purchasing this dip, should demand a trial and proof that it will destroy parasites on sheep, and afford the animals a reasonable amount of protection against further infestation." Much trouble and actual loss, he said, were brought about through the use of inefficient dips, and only that day he had seen at the Abattoirs saleyards sheep from which practically all the wool had disappeared.

The Principal of Roseworthy College (Mr. W. J. Colebatch) said he would like to see provision made that no dip should be allowed to be offered for sale until it had been demonstrated to be effective.

Handling Cream on the Farms.

At the instance of Mr. C. J. Tuckwell, it was decided to recommend to the Minister of Agriculture that the short statement of steps to be taken to ensure cleanliness in handling cream on the farm should be distributed amongst farmers. Mr. Tuckwell pointed out that at the conference of butter factories recently held in Adelaide, the importance of cleanliness as a factor toward the production of a good quality butter was strongly emphasized.

Life Members.

The names of the following gentlemen were added to the list of life members of the Agricultural Bureau:—Messrs. J. Roebuck and W. Nicholls, of the Longwood Branch; and A. Harper and J. Spencer, of the Clarendon Branch.

New Members.

The following additions were made to the rolls of existing Branches—Carrieton—T. Shepperd, F. G. Rosenberg, R. Neil, F. R. Fisher; Kybybolite—J. W. Stephens; Lameroo—W. D. Cowley, C. Cornish; Koppio—D. C. Gibbs; Tarcowie—J. Ninnis, P. Twigden; Salt Creek—J. Sawatzke; Amyton—L. Hitch; Cummins—H. J. Blacko, A. Waters, J. A. Eckert, R. P. Pfeiffer; Halidon—J. Clonan,

E. Liebelt, H. Clark; Forest Range—C. Probert, N. Green, S. Mason; Wepowie—D. Churcher; Ki-Ki—F. Honeyman, A. Hode; Kongorong—S. Dixon, E. Asbey; Naracoorte—J. E. Smith, W. B. Copping, J. Smith; Borrika—H. J. Box, A. R. Dohnt; Warcowie—F. McKaskil; Mount Remarkable—J. V. Kelly, J. Kelly, W. G. Mooney, E. J. Mooney, R. S. Kennedy; Renmark—E. Dodwell, C. Zimmermann, A. Young; Bookpurnong East—R. Furniss; Miltalie—H. W. Leinert, E. C. Leinert, W. P. McEachen, O. Degner; Forster—A. Weidenhofer; Mindarie—W. J. McDonald; Mundalla—J. Saxon; Renmark—P. N. Bundey, A. Withers, H. McCarthy; Laura—J. M. Hammill, E. A. Knauerhause, W. H. Staude, T. A. Kleinig; Mount Bryan East—C. Dare, W. James, J. Dunstan, B. Dunstan; Clarendon—P. J. Hawke, E. R. Spencer, K. P. Harper; Coonalpyn—G. Cavenagh; Whyte Yarcowie—H. Hanlin, P. McEntee; Riverton—W. K. Bednall, M. Ward; Ramco—F. Perry, J. J. Wallace, C. Bain; Uraidla and Summertown—F. W. Sharp, W. J. Blackwell, G. D. Blackwell; Tantanoola—E. Perrper, T. Granny, W. J. Beaton, P. Holloway, O. Grosser, J. Willis; Mount Barker—S. Jennings, H. S. Portridge, B. Bummett, — Ayton; Kanmantoo—H. W. Hannam; Mintaro—H. Torr, T. E. Jacka;Millicent—Jas. Bell; Brinkley—G. C. Martin, E. R. Martin, E. G. Humphrey, E. L. White, R. K. Forrest; Parrakie—Chas. Millstead, S. Lewis, N. Catford, Ed. Morgan; Clanfield—P. O'Driscoll, H. Phillis; Yeelanna—F. L. Reed, F. W. Procter; Cherry Gardens—K. Rivers, I. L. Stone; Netherton—P. C. Potter, L. G. Wray, M. T. Wray, A. W. Lower, A. J. Ritchie, A. W. G. Bald, E. R. Byerlee; Morphett Vale—E. Perry; Angaston—Rev. H. G. Nelson; Hawker—Dr. S. Bruhell, D. O'Connell, M. Nugent; Mypolonga—C. B. Ries; Mallala—H. F. Rowe; Blyth—A. L. Halliday; Waikerie—J. Francis, W. G. Robertson, E. Miller, A. M. Taylor, C. Webber; Milang—O. Nelson, J. E. Thomas; Hookina—J. O'Connor; Yongala Vale—F. Symon, John Lloyd, jun.; Narrung—B. G. Thatcher; Saddleworth—N. Fraser, C. Fraser, W. Eckermann.

DAIRY AND FARM PRODUCE MARKETS.

A. W. Sandford & Co., Limited, report on September 1st:—

Butter.—A very substantial increase in production was recorded for August, and under the stimulus of keen inquiry from the Eastern States the market has kept cleared of factory butters at the values reached at the end of July. It is now expected that freight will be obtained for the oversea carriage of surplus butter during September and October, with a possibility of further shipments in November. Prices continue firm at "Alfa," 1s. 3d. per lb.; "Primus," 1s. 2½d.; third grade creamery, 1s. to 1s. 0½d.; choice separators and dairies, 1s. to 1s. 1d.; fair quality, 10½d. to 11d.; store and collectors', 9d. to 9¾d. per lb.

Eggs.—Quantities coming forward are very much heavier than a month ago, and in fact the season bids fair to be a big one. In the absence of freight offering values receded to 7½d. per dozen for hen; duck, 8½d. per dozen.

Cheese.—The new season's make is now reaching the market in increasing quantities, but with keen Interstate demand, combined with good local trade, rates have maintained at the last quotation, viz.—8¾d. to 9½d. per lb. for large to loaf.

Honey.—Only very little offering, the season being over. However, there is good inquiry at 4d. to 4½d. per lb. for prime samples.

Almonds.—Purchasers still offering 1s. for "Brandis," 11½d. mixed soft-shells, 7d. hard-shells, kernels 1s. 10d. per lb., but very few are available.

Bacon.—No alteration to report in values of this line, heavy parcels are coming to hand, but market is kept fairly clear. Best factory cured lines, 9½d. to 10¼d. per lb.; hams and middles, 10d. to 10½d.; rolls, 10d. per lb.

Live Poultry.—Heavy quantities have been marketed throughout the month, but it is pleasing to report that demand has been quite equal to all lots coming forward, with prices well sustaining. Heavy-weight table roosters sold at from 3s. 6d. to 4s. 6d. each; nice-conditioned cockerels and plump hens, 2s. 6d. to 3s. 6d. each; ducks, 2s. 6d. to 3s. 6d.; geese, 4s. 9d. to 5s. 6d. each; pigeons, 7½d. each; turkeys, from 6½d. to 8½d. per lb. live weight for fair to good table birds.

Potatoes.—The bulk of the potatoes handled in Adelaide have been supplied from the Mount Gambier district. The glut period of the year has probably now been bridged, and from now onward it may be expected that Adelaide buyers will be obtaining a fair proportion of their supplies from Victoria. Onions.—Supplies locally and in the Gambier district are practically exhausted, and for the next few months we must look to Victoria for our requirements. Prices—Potatoes, £4 10s. to £5 10s. per ton on rails Mile End or Port Adelaide. Onions, £11 to £12 per ton on rails Mile End or Port Adelaide.

THE AGRICULTURAL OUTLOOK.

REPORT FOR THE MONTH OF AUGUST.

Booborowie.—Weather—The second fortnight of this month was dry; this was followed by heavy flooding rains and a fall of snow on August 21st. Rough, cold weather continued for a week, a few bright days, and again a heavy fall, which lasted for some days. Crops are just beginning to make a little headway in some fields. A few crops are only just in, and some farmers have been unable to sow some of their fallow. Natural feed is very backward; the extreme cold and wet is retarding its growth. Stock are not looking as well as they should at this time of the year in consequence of the late season and the damaged hay. Pests—Rabbits are very numerous and doing much damage. Hares are also doing harm. Miscellaneous—The area sown this year is much lower than last, and the crops are poor compared to those of last year.

Eyre's Peninsula.—Weather has been fairly typical of August weather. Two periods of cold, wet, and very windy conditions were experienced intermitted by a period of fine days, with temperatures, if anything, inclined to be rather high. Up to date (24th) rain has fallen on only eight days, but heavy falls were experienced, so that the total registered is nearly 3in., and equal to the average for the previous two seasons. Three or four frosts were noted. Crops have made splendid headway, especially during the latter half of the month, and where unaffected by the rabbits, are promising equally as well as last season's growth. About 300 acres have been turned over as fallow in the district. Natural feed is very plentiful. Pests.—Rabbits are still very plentiful, but many have been trapped, and some result has been obtained with poison.

Kybybolite.—Weather—The rainfall for the month was exactly the average fall, at the beginning of the month beautiful fine weather was experienced, but cold wet winter conditions prevailed for the latter half. Crops have made little headway, and on all old cropped land weeds, especially sorrel, are showing very badly. Prospects are on the whole less favorable than last month. An appreciable area of new seeding of wheat has taken place this month, on land that has previously been too wet to sow. Natural feed shows a fair length. Stock generally are in very fair condition and healthy. Spring lambs are being dropped, and promise good percentage. Pests—Rabbits are rather plentiful. Miscellaneous—Conditions have been too wet for fallowing as yet, and the time of farmers has been occupied, where it might have been possible, in the effort to increase the areas sown.

Turretfield.—Weather—Finer weather prevailed during August than was experienced since May. The rainfall recorded was 221 points, most of which fell at the beginning, middle, and end of the month, with periods of fine weather in between. There were a few frosts, but no damage resulted. Crops are making more rapid headway, but some of the earlier sown fields show patches of yellow owing to excessive wet. Weeds are plentiful in most of the crops. Farmers were unable to kill the weeds by cultivation on account of the continuous rains during the feeding season. Natural Feed—There is abundance of natural feed, which has made very luxurious growth. Stock are all in good condition. Lambs are thriving, and a few early foals are to be seen in the fields. Pests—Rabbits are fairly numerous, but are not likely to constitute a pest, as trappers are active. Miscellaneous—Farmers are busy with fallowing operations. Settlers in the district are considerably inconvenienced by the dangerous nature of the ford over the North Para River, and the fact that the footbridge across this river was swept away by floods last month.

Veitch.—Weather—We have had a number of very heavy frosts during this month. The rainfall for the month is 191 points; Veitch average for same month, 138 points. Crops—Early-sown wheatfields are now bursting into ear, and look well. Later-sown crops are making splendid growth. Natural feed good; is now going to seed. Stock—Good, healthy condition. Pests—Rabbits increasing; mice decreasing. Miscellaneous—Scrub rolling and fallowing operations are the main items of work going on in the district.

RAINFALL TABLE.

The following figures, from data supplied by the Commonwealth Meteorological Department, show the rainfall at the subjoined stations for the month of and to the end of August, 1917, also the average precipitation to the end of August, and the average annual rainfall.

Station.	For Aug., 1917.	To end Aug., 1917.	Av'ge. to end Aug	Av'ge. Annual Rainfall
FAR NORTH AND UPPER NORTH.				
Oodnadatta	0·14	4·26	3·43	4·76
Tarcoola	0·28	6·41	4·57	7·58
Hergott	0·42	4·50	4·01	6·04
Farina	0·78	6·10	4·55	6·70
Leigh's Creek	0·47	8·50	5·85	8·66
Beltana	0·69	9·37	6·11	9·22
Blinman	1·61	11·31	8·88	12·83
Hookina	1·68	20·10	7·66	—
Hawker	2·04	20·00	8·39	12·22
Wilson	1·46	15·61	8·08	11·78
Gordon	1·04	15·79	6·64	10·26
Quorn	2·24	12·84	9·49	13·78
Port Augusta	0·77	8·69	6·32	9·46
Port Augusta W.	0·79	9·25	6·16	9·36
Bruce	1·13	11·30	6·53	10·01
Hammond	1·68	16·10	7·48	11·46
Wilmington	3·43	17·36	12·51	18·26
Willowie	2·00	15·14	7·68	11·90
Melrose	6·62	28·94	16·13	23·04
Booleroo Centre	2·86	16·90	10·46	15·83
Port Germein	1·06	11·09	8·61	12·84
Wirrabara	5·71	24·34	13·25	18·91
Appila	2·65	15·15	9·95	15·08
Cradock	1·23	14·65	7·21	10·86
Carrieton	1·85	17·32	8·24	12·22
Johnburg	1·65	13·87	6·67	10·21
Eurelia	1·47	17·73	8·78	13·24
Orroroo	2·76	17·37	9·19	13·42
Black Rock	2·73	16·34	8·23	12·25
Petersburg	2·42	16·51	8·42	13·07
Yongala	3·04	17·70	9·20	13·94
NORTH-EAST.				
Ucolta	1·57	13·59	—	—
Nackara	1·05	13·47	6·20	—
Yunta	1·41	13·83	5·59	8·22
Waukaringa	1·25	11·64	5·27	7·94
Mannahill	1·04	9·93	5·45	8·46
Cockburn	1·96	10·48	5·27	7·97
Broken Hill, NSW	1·73	12·27	6·49	9·63
LOWER NORTH.				
Port Pirie	1·53	12·35	9·05	13·21
Port Broughton	2·32	11·48	12·02	14·33
Bute	3·81	16·37	11·10	15·42
Laura	3·05	18·16	12·32	18·22
Caltowie	3·56	16·62	11·23	17·27
Jamestown	4·71	18·71	14·52	17·46
Gladstone	3·67	17·06	10·53	16·00
Crystal Brook	2·31	14·96	10·72	15·62
Georgetown	4·15	19·89	12·37	18·32
Narridy	2·47	15·28	11·31	16·79
Redhill	2·97	16·78	11·74	16·79
LOWER NORTH—*continued*.				
Spalding	4·50	19·92	12·80	20·25
Gulnare	4·12	19·25	12·05	19·74
Bundaleer W. Wks.	4·50	19·57	10·94	17·29
Yacka	2·44	15·81	10·47	15·27
Koolunga	2·81	16·47	10·93	15·94
Snowtown	3·52	16·04	14·63	15·70
Brinkworth	3·49	17·30	11·10	15·48
Blyth	3·32	17·29	11·33	16·34
Clare	5·16	26·91	17·00	24·30
Mintaro Central	6·31	30·70	15·35	21·99
Watervale	6·32	32·12	19·02	27·17
Auburn	4·76	27·73	16·13	24·25
Hoyleton	2·73	17·32	12·30	17·96
Balaklava	2·59	13·21	10·90	16·03
Port Wakefield	2·12	12·94	9·49	13·13
Terowie	2·67	14·65	8·80	13·71
Yarcowie	2·72	16·06	9·21	13·91
Hallett	4·04	14·90	10·81	16·40
Mount Bryan	3·64	15·49	10·81	15·73
Burra	3·79	16·12	12·28	17·82
Farrell's Flat	3·53	17·46	13·07	18·87
WEST OF MURRAY RANGE.				
Manoora	3·61	20·61	12·16	18·09
Saddleworth	3·76	19·43	13·67	19·69
Marrabel	3·88	20·40	13·25	18·94
Riverton	4·11	23·00	14·26	20·48
Tarlee	3·02	17·81	11·56	17·48
Stockport	2·69	17·03	10·96	15·89
Hamley Bridge	2·58	13·83	11·37	16·45
Kapunda	3·47	18·57	13·74	19·67
Freeling	2·83	15·17	12·42	17·85
Greenock	3·80	19·90	16·85	21·46
Truro	4·58	21·28	13·85	19·74
Stockwell	3·71	19·13	12·92	20·30
Nuriootpa	3·32	18·39	14·66	21·25
Angaston	4·25	22·04	15·52	22·25
Tanunda	3·16	19·56	15·65	22·28
Lyndoch	4·54	21·67	16·03	23·01
Williamstown	5·23	—	—	—
ADELAIDE PLAINS.				
Mallala	2·04	12·52	11·62	16·88
Roseworthy	2·87	15·57	12·05	17·31
Gawler	3·21	17·79	13·54	19·21
Two Wells	1·95	10·62	11·58	16·36
Virginia	3·22	15·79	12·37	17·58
Smithfield	3·28	17·97	11·95	17·30
Salisbury	3·31	18·44	13·22	18·57
North Adelaide	3·83	25·21	16·43	21·49
Adelaide	3·03	20·95	15·26	21·04
Brighton	4·93	29·00	15·07	—
Glenelg	2·90	19·25	13·18	—
Magill	4·42	28·29	18·40	19·93

RAINFALL—*continued.*

Station.	For Aug., 1917.	To end Aug., 1917.	Av'ge. to end Aug.	Av'ge. Annual Rainfall
ADELAIDE PLAINS—*continued.*				
Glen Osmond ...	4·07	29·60	18·42	25·26
Mitcham	3·67	24·51	17·04	23·47
Belair	4.41	—	20·81	28·64
MOUNT LOFTY RANGES.				
Teatree Gully....	6·71	31·59	19·88	28·19
Stirling West ...	8·63	55·35	33·90	46·70
Uraidla	8·82	54·22	32·40	44·35
Clarendon	5·07	31·57	24·20	33·67
Morphett Vale ..	3·05	21·96	15·40	23·32
Noarlunga	2·54	20·71	14·57	20·28
Willunga	2·94	25·59	18·80	25·98
Aldinga	2·68	20·55	14·57	20·34
Normanville	2·20	19·66	15·17	20·65
Yankalilla.......	2·55	23·05	16·90	22·78
Cape Jervis	—	—	12·08	16·34
Mount Pleasant .	5·07	30·64	19·12	26·87
Blumberg	5·39	35·21	20·95	29·38
Gumeracha	6·42	39·37	23·06	33·30
Lobethal	6·60	33·94	25·46	35·38
Woodside	5·61	34·05	22·63	31·87
Hahndorf	6·28	35·40	24·76	35·45
Nairne	4·41	30·02	20·16	28·83
Mount Barker ...	5·77	37·30	22·03	30·93
Echunga	5·50	35·77	23·47	32·83
Macclesfield	3·91	30·31	21·46	30·72
Meadows	5·80	41·38	25·27	35·52
Strathalbyn	2·12	16·42	13·63	19·28
Myponga........	3·68	—	—	—
Millbrook Reservr.	6·04	—	—	—
MURRAY FLATS AND VALLEY.				
Wellington	2·36	11·90	10·16	15·01
Milang	1·71	10·96	11·16	16·08
Langhorne's Brdg	1·42	—	—	15·27
Tailem Bend	1·92	12·92	9·50	—
Murray Bridge ..	1·68	9·41	9·60	14·32
Callington	1·69	12·48	10·79	15·65
Mannum	1·07	7·78	8·05	11·67
Palmer	1·87	13·99	9·64	15·60
Sedan	1·57	10·52	8·47	11·92
Blanchetown	0·75	3·58	6·98	—
Eudunda........	2·74	13·79	12·07	17·33
Sutherlands	1·45	7·17	7·13	10·71
Morgan	0·78	5·35	5·86	10·60
Overland Corner .	1·26	7·57	7·17	—
Renmark	1·66	10·81	6·63	11·42
Loxton	1·89	12·12	6·67	10 93
Swan Reach	1·06	—	—	—
Waikerie........	1·22	—	—	—
WEST OF SPENCER'S GULF.				
Eucla..........	0·92	8·66	7·46	19·13
White Well......	1·60	9·39	6·50	9·67
Fowler's Bay ...	1·20	12·88	9·46	12·11
Penong	1·99	12·29	8·59	11·93
Murat Bay	1·12	10·63	7·51	—
Smoky Bay	1·19	11·16	—	—
Streaky Bay.....	1·79	16·59	11·71	15·31

Station.	For Aug., 1917.	To end Aug., 1917.	Av'ge. to end Aug.	Av'ge. Annual Rainfal
WEST OF SPENCER'S GULF—*continued.*				
Port Elliston	3·18	19·46	12·60	16 49
Port Lincoln	3·85	20·22	12·91	19·88
Tumby Bay	2·40	12·65	11·11	15·00
Carrow	2·55	17·93	—	—
Cowell	1·04	8·32	8·09	11 76
Point Lowly......	0·94	9·20	7·64	12·21
Cummins	4·02	—	—	—
Arno Bay	1·58	—	—	—
YORKE'S PENINSULA.				
Wallaroo.........	2·07	12·37	10·29	14·05
Kadina..........	4·58	16·41	11·60	15·88
Moonta	3·36	15·04	11·57	15·22
Green's Plains ...	3·59	15·00	11·45	15·73
Maitland	4·67	20·77	14·76	20·08
Ardrossan	2·77	11·58	10·08	13·89
Port Victoria ...	3·71	15·97	11·21	15·21
Curramulka	2·42	17·11	13·47	18·50
Minlaton	3·44	19·86	12·94	17·41
Stansbury	3·55	19·79	12·33	17·06
Warooka	3·67	20·56	13·17	17·71
Yorketown	3·09	18·16	12·61	17·47
Edithburgh	2·43	17·92	12·07	16·48
SOUTH AND SOUTH-EAST.				
Cape Borda	4·14	21·77	19·60	25·09
Kingscote	2·14	18·10	14·18	18·95
Penneshaw	2·46	16·03	15·95	21·34
Cape Willoughby..	—	—	14·34	19·69
Victor Harbor ...	2·42	19·04	15·57	22·18
Port Elliot	2·25	18·13	14·29	20·33
Goolwa..........	2·34	17·04	11·72	17·93
Pinnaroo	3·08	12·33	10·04	16·74
Parilla	2·98	12·49	—	—
Lameroo	3·13	12·89	10·62	16·55
Parrakie	2·92	12·37	9·17	—
Geranium	3·22	14·83	9·53	—
Peake	3·05	14·84	10·73	—
Cooke's Plains ..	2·66	14·58	10·09	14·74
Meningie	2·61	17·29	—	—
Coomandook	3·12	17·32	11·89	16·80
Coonalpyn	2·71	17·34	12·03	17·49
Tintinara	2·93	16·91	12·46	18·78
Keith...........	3·14	16·42	12·12	—
Bordertown	2·83	18·15	12·97	19·76
Wolseley	3·02	17·11	11·73	17·72
Frances	3·04	16·24	13·26	20·74
Naracoorte	2·80	19·81	15·45	22·60
Penola	3·06	23·21	17·41	26·78
Lucindale	2·70	20·47	16·24	23·32
Kingston........	3·05	23·50	18·02	24·73
Robe	2·82	21·32	18·59	24·69
Beachport.......	3·15	22·63	20·93	27·51
Millicent	3·33	24·05	21·66	29·25
Mount Gambier .	3·33	23·57	22·40	32·00
C. Nrthumberland	—	—	30·17	26·63
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Paskeville	*	—	—	Wynarka	‡	—	—
Penola	196	—	—	Yabmana	*	—	—
Penong	*	8	13	Yacka	164	—	—
Petina	*	—	—	Yadnarie	174	—	—
Pine Forest	†	—	—	Yallunda	*	—	—
Pinnaroo	*	—	—	Yaninee	175	—	—
Pompoota	184	4, 19	3, 17	Yeelanna	175	—	—
Port Broughton	*	—	—	Yongala Vale	164	28	26
Port Elliot	189	15	20	Yorketown	*	—	—

* No report received during the month of August. † Formal report only received.
‡ Held over until next month.

THE AGRICULTURAL BUREAU OF SOUTH AUSTRALIA.

Every producer should be a member of the Agricultural Bureau. A postcard to the Department of Agriculture will bring information as to the name and address of the secretary of the nearest Branch.

If the nearest Branch is too far from the reader's home, the opportunity occurs to form a new one. Write to the department for fuller particulars concerning the work of this institution.

REPORTS OF BUREAU MEETINGS.

UPPER-NORTH DISTRICT.

(PETERSBURG AND NORTHWARD)

AMYTON (Average annual rainfall, 11.82in.).

July 31st.—Present: 14 members and two visitors.

Mixed Farming.—In a paper dealing with this subject Mr. A. Crisp said that with the present shortage of labor every farmer should combine such sidelines as dairying, wool growing and pig raising with wheat growing. He would suggest that on a farm of 1,500 acres 300 to 350 acres should be put under crop each year, and of that area 250 acres should be fallow land. The remaining portion could be stubble land ploughed soon after harvest, and then left till after rain had fallen. A flock of 200 ewes could be kept, seeing that such good prices were ruling for wool and lambs. He favored the Merino breed of sheep. Not only did sheep manure and keep the fallow clean, but they also provided the farm with meat. In reference to dairying he spoke in favor of the Hereford cattle. Good cows of that breed were good milkers, and the bull calves could be sold at a good profit. He would also keep one or two pigs. He thought the Berkshire crossed with Yorkshire one of the best types suited for mixed farming. They were hardy, and matured quickly. Poultry should also be kept, and the care and attention spent on that side line would more than repay the small amount of labor which they required.

Sheep Combined with Wheatgrowing.—Mr. H. K. Gum contributed a paper on this subject. He said that with the uncertain rainfall of that district it was not wise for one to depend solely on wheatgrowing as a means of earning a livelihood. He thought that one could not do better than combine sheep with wheatgrowing. He considered that Merino sheep were most suited to that district. A flock of sheep would save a large amount of labor on fallow land, especially during the spring months, as they were then able to destroy most of the weeds. If the sheep were changed from one paddock to another at frequent intervals it would keep the field sweet, and the sheep would be more contented. He urged farmers to keep a small flock of sheep on their holdings, as for the small amount of labor attached to tending them they would return a very good profit.

ARDEN VALE AND WEST YACCA (Average annual rainfall, 16.65in.).

Present: eight members and visitors.

A paper was read by Mr. Willis on "Road Construction and the Tire Act." In the discussion that followed members decided that metal roads gave the best results. In speaking of the Tire Act Mr. Willis said the Act should be enforced, and if teamsters wanted to cart heavy loads wider tires should be put on the wagon.

HAWKER (Average annual rainfall, 12.77in.).

July 21st.—Present: seven members.

Horse Breeding Societies.—Mr. W. J. Pyman contributed a paper on this subject. He said one could not fail to notice the difference in the quality of the draught stock offered for sale at the present time and that offered two or three years ago. A better class of stallions and mares should be used, and in the course of a few years one would notice an improvement in the stock of that district. He advocated the formation of a breeding society, for the purpose of purchasing a good stallion for the use of the members of the society, which he stated, if run on good business lines, would be sure to give satisfaction. Members discussed the paper, and agreed with the views expressed by the writer.

HOOKINA (Average annual rainfall, 12in.).

July 31st.—Present: five members and two visitors.

Dams and Dam Sinking.—In a paper dealing with this subject Mr. G. Henschke said one of the essential requirements on the farm was a good supply of water. One could not keep stock without a permanent supply, and therefore a well, bore, or dam should be sunk on the holding. The best time to sink a dam was in the cool weather, as it was much easier work for the horses. Care should be taken in selecting a site to see that the place chosen was on good holding ground. For that reason he would sink five trial holes, one in the centre and one other in each corner, as the ground often varied in a short distance. The holes should be sunk about 2ft. deeper than the bottom of the dam to make sure that it was good holding ground. When sinking the dam one should start on the outside by ploughing three or four furrows (about a full scoop in width) and then commence to scoop out about half a chain away from the dam. He recommended the buck-scraper as the one most suitable, being simple and strong in construction. The scoop should be left tipped when coming back over the banks, because that would help put them into shape. Drains were necessary, and these could be put down each way from the dam to drain all the water from the vicinity into it. A hole should also be sunk in front of the dam to catch the silt that otherwise would go into the dam. In discussing the paper members thought it a good plan to start the bank some distance away, as that would save hauling the last of the earth over the bank, and would make the work much easier for the horses

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MORCHARD (Average annual rainfall, 11in. to 12in.).

June 30th.—Present: 22 members and two visitors.

Annual Meeting.—The Hon. Secretary (Mr. H. G. Kupke) read the annual report, and the election of officers followed.

Mixed Farming.—In a short paper on this subject, Mr. C. Case said he thought every farmer with sufficient acreage should keep sheep and cattle. He did not think it was advisable to keep sheep in the same paddocks as the working horses. Cows were profitable, but one needed extra labor to attend to them properly. He preferred sheep as the best paying side line, as they were less trouble than other stock. Members discussed the paper and agreed with the views of the speaker.

MORCHARD (Average annual rainfall, 11in. to 12in.).

August 4th.—Present: 20 members and two visitors.

Blacksmith Shop on the Farm.—In a paper dealing with this subject Mr. L. Toop said there were many small jobs that could be done if one had a forge on the farm. Plating plough shares was a job almost any farmer could do, as it required very little skill. Cultivator shares could also be made in the home forge, and whether the shares were purchased or made on the farm it was a good plan to put them in the fire and temper them to suit the land. He had found that the shares lasted longer if that practice were adopted. Laying harrow tines was another profitable job that could be done without one having previous experience. Implements should be taken to the shop and thoroughly overhauled before being taken into the field; that would save time during the busy seasons, and also keep down the expenses of the farm.

Rabbit Destruction.—Mr. W. A. Brown contributed a paper on this subject. He said it was essential that one should have rabbit-proof fences before starting to kill this pest. Experience in other districts had shown him that a number of rabbit yards placed on the fences, especially in the corners, proved very successful, as in that manner he had accounted for 9,000 rabbits. During the summer months he had obtained good results by using water poisoned with strychnine. Rabbits lived mostly in warrens in that district, and although by using poison he had killed good numbers, he preferred the use of the fumigator, as, providing care was taken to block up all entrances of the burrows, no animal could escape death. In places where the burrows were amongst rocks and trees it was better to use poison, as the cracks and crevices allowed the fumes to escape. In discussing the first paper, Mr. Kitto said the forge was most necessary on the farm, as most of the repairs could be effected, and useful time spent on wet days. Messrs. H. A. Toop, Riechstein, Brown, Jasper, and Swigden also spoke in a like manner. In discussing the paper on rabbit destruction Mr. Riechstein spoke in favor of bisulphide of carbon and ploughing the burrows out. Mr. W. Toop said the poison cart had done good work. Mr. H. A. Toop thought wire netting traps very useful, as one was able to get the skins which were at present bringing very good prices. Mr. W. Twigden had found fumigating the most successful of all methods. Mr. R. Jasper said rabbits readily took sandalwood twigs covered with strychnine when feed was scarce and dry.

WEPOWIE (Average annual rainfall, 13in. to 14in.).

July 28th.—Present: 12 members.

Horse Breeding.—In a short paper on this subject, Mr. F. G. Roocke said he favored the clean bone type of horse as most suitable for farm work. He thought that the Suffolk Punch crossed with a Clydesdale mare made a good all-round farm horse. Care should be taken when mating to select a quiet mare with a good temper, and to obtain the services of the best stallion that the district could offer. He thought the mare should not be too fat at time of foaling, but should be given steady work until three or four days before foaling time, and, if possible, kept in a small paddock by herself close to the homestead, where other horses could not worry her, and where she could be watched. After foaling, the mare should be well fed and cared for.

CARRIETON, August 9th.—Annual Meeting.—The election of officers for the ensuing 12 months took place, and the Chairman (Mr. W. T. Brown) presented Mr. F. Kaeger with a life membership certificate of the Agricultural Bureau.

MOUNT REMARKABLE, August 8th.—The Veterinary Lecturer (Mr. F. E. Place, B.V.Sc., M.R.C.V.S.) gave a demonstration in the afternoon and a lecture in the evening, in which he dealt with various veterinary subjects of interest to farmers. At a previous meeting Mr. C. Giles delivered an address on the wheat pool.

WILMINGTON, August 8th.—Mr. D. S. George contributed two short papers in which he dealt with the wheat certificate receipt as issued by the various agents for the delivery of wheat.

MIDDLE-NORTH DISTRICT.

(PETERSBURG TO FARRELL'S FLAT.)

BEETALOO VALLEY (Average annual rainfall, 18in to 19in.).

July 30th.—Present: 10 members and two visitors.

Farming.—In a paper on this subject, Mr. J. G. Flavel said that to obtain good results from farming, good management and attention were required. A farm comprising 600 acres should have 200 acres under crop, 200 acres of fallow, and the balance grass land for stock. Fallowing should be commenced as early as possible in order that it might have the benefit of the early rains. Sheep should be kept as there was a good profit to be made from breeding lambs. The sheep could be grazed on the grass land and they would also help to keep the fallow clean. It was not wise to rely solely on wheat growing, but if one kept other side lines there would be something to rely on should the wheat season prove a failure. In sowing wheat, it was not advisable to drill the same variety on the same ground each year. He had found that wheat sown on land where oats had previously been grown yielded very well. The stubble should be burnt after harvest, although it could be left for feed, but by burning one destroyed many weeds and diseases which affected the wheat, and by cropping on the three years system, one would still have the grass land on which to feed sheep.

BUNDALEER SPRINGS.

August 6th.—Present: 11 members and two visitors.

Dairying.—In a paper on this subject, Mr. F. C. Giles said he favored a cow with a quiet disposition and fine silky coat. The most important point of all, however, was the udder, which should come well forward, and be square at the back, with teats of fair size, evenly set on udder, and of a pink or brownish color, and easy to milk. In such a cold district as that, Mr. Giles favored the Shorthorn, being hardier, although some authorities held that they were given to putting on flesh to the detriment of their butter yield. He considered that the better price obtainable in the open market for Shorthorn stock warranted his favoring that breed. More attention should be given to feeding, and summer feed, such as sorghum or maize, grown, where a suitable plot for lucerne was not obtainable, as green feed not only kept the flow of milk up for a longer period, but helped to keep the cow in better health. In winter time it was wise to provide shelter, a shed being best; but, failing that, a straw stack. Cows should be milked regularly night and morning, and always stripped as cleanly as possible, after having been milked as dry as the pull of the hand could do it. Milk should be separated as soon as it was taken from the cow. When separator cream was added to set cream, both should be cooled first and stirred. The cream should be stirred at least twice a day to break up the crust that formed at the top, to let off any gases, as if that were not done the butter would be spoiled, and the cow held responsible for it. Cream should be churned at least twice a week in winter, and three times in summer. Butter and salt should be carefully weighed, and the latter worked thoroughly in, but not overworked, or the butter would become greasy. Mr. Giles thought the district too cold for Jersey stock, although he had no personal experience of them. In the discussion of the subject, Mr. O'Dea considered that feeding the cow was the most important item in its welfare. Mr. Travers quoted last year's congress, at which the Dairy Expert advocated feeding dry feed with lucerne. Mr. Dick recommended Japanese millet as being an excellent fodder for cattle. Mr. Kerin had found crushed oats a very fine feed for cream. That view was also held by Mr. Forth, who preferred chaff and bran for stall feed. Distillers' grains he had also found good, also chaffed maize in summer. Mr. A. Lawrie, if feeding oats with chaff, would give it dry, but oats with bran damp.

MINTARO (Average annual rainfall, 17.41in.).

July 30th.—Present: 18 members and three visitors.

Care of Horses Shoulders.—In a short paper on this subject, Mr. R. Hean said the collars should be well cleaned before they were put on to the horse. Every horse should have a collar of its own. If possible, hair-lined collars should be used, as they did not cause so many sores. He preferred the pipe collar, as the horse was less likely to choke. Care should be taken to see that the collar fitted well; it was better to have it a little tight than too loose, as there was not so much danger of the collar chafing the shoulders. A leather false collar or clean bran bag was often used on a horse whose shoulders were inclined to rub. The hair of the mane should be pulled from under the collar before hooking the horse to its work, as that would cause a lump, and not allow the collar to fit evenly on the shoulder. Sores were also caused by feeding horses on soft feed and giving them heavy work, also by giving too much uncrushed corn, which over-heated the blood. That caused boils and lumps to rise on the shoulders, which turned into sores when the horse was worked. He had found that a good remedy was to give the animal sulphur or Epsom salts in its food once or twice a week. Care should be taken when working young horses, as there was a tendency for the shoulders to scald, and they were always harder to keep sound afterwards. Mr. J. J. Fitzloff tabled a large Belgium carrot weighing 6¼lbs.

MUNDOORA (Average annual rainfall, 14.11in.).

July 2nd.—Present: 15 members and one visitor.

The Most Profitable Side Line.—In opening a discussion on this topic, Mr. Button mentioned a number of side lines, but thought pigs the most profitable. Mr. Dee also favored keeping pigs. Mr. Noble considered gardening a profitable side line. Mr. Rearden thought that a farmer with a team of horses to look after had no spare time for cows, pigs, &c., but if a hired man was kept, then he favored a few pigs. Mr. Wilson emphasized the necessity for keeping sheep. He did not consider them a side line, but a necessity for keeping one's land clean.

WHYTE YARCOWIE (Average annual rainfall, 13.91in.).

July 21st.—Present: seven members.

Cultivation of the Soil.—In a paper on this subject Mr. G. D. Mudge said that land was cultivated chiefly for two reasons, namely, to catch and hold as much moisture as possible, and to destroy rubbish. After ploughing had been finished the land should be harrowed, that would help to conserve moisture, and would help to germinate the seeds in the ground. Land was ploughed at various depths, but his experience in that district had been that fallowing between 3in. or 4in. would give best results. He thought it was necessary to have a flock of sheep on the farm, as they could be run on the fallow, and would materially help in keeping it clean. In discussing the paper Mr. Jenkins said he had received good results from limestone country that had been ploughed when very wet. Mr. McGregor had worked his plough as a cultivator by removing the mouldboards, with satisfactory results. Mr. Pearce favored deep ploughing, although he thought light soils need not be ploughed so deeply.

CRYSTAL BROOK, June 2nd.—Mr. J. Venning read a paper on the "Mice Trouble," which was well received and provided a good discussion.

CRYSTAL BROOK, August 4th.—Mr. A. H. Peake read a paper on "Building a Haystack." Members generally agreed with the views expressed in the paper, but some considered 7yds. was too wide to build the stack.

MOUNT BRYAN EAST, July 7th.—Mr. C. Dare gave a very interesting and instructive address on "Wool Classing," which was appreciated by the members very much.

MOUNT BRYAN EAST, August 4th.—A discussion took place on the class of sheep best suited to that district, members being in favor of the Merino. An extract from the *Journal* on "Bookkeeping" was read by a member, and a good discussion followed.

YACKA, July 5th.—Mr. S. G. Harvey gave an address on "Colic, the Most Common Complaint of the Horse."

YONGALA VALE, August 4th.—The meeting took the form of a discussion on the need for more careful inspection and examination of weighbridges.

LOWER-NORTH DISTRICT.

(ADELAIDE TO FARRELL'S FLAT)

LYNDOCH (Average annual rainfall, 23.01in.).

August 2nd.—Present: 16 members.

Fruit Cultivation.—Mr. F. Moore opened a discussion on this subject. He said the soil of that district required dressings of lime, phosphate, and potash. They should be applied late in winter or early in spring, but not before August. Trees and vines had surface and deep set roots. If the manure was applied in furrows, it caused the roots to follow the direction of the furrows, and then when cultivation took place it destroyed the surface roots. He preferred to broadcast manure, and have it spread over as large an area as possible. Heavy dressings were wasteful, as lighter dressings had repeatedly given more fruitful results. It was desirable to start with a light dressing, and increase the quantity each succeeding season. He had used 56lbs. to the acre of superphosphate in 1915, 90lbs. per acre in 1916, and intended to apply 120lbs. per acre this season. He had applied lime to his orchard for the past five years. He used a truckload (about 80 bags) of lime ash each season, which cost 10s. a ton f.o.b. Lyndoch station. It was spread over the soil from the back of a dray, that being the cheapest and quickest way of distributing it in the orchard. By liming the soil, say, 10cwt. per acre for a few years, it prepared the ground for the future reception of other minerals. Mr. H. Springbelt thought that as the limbs and twigs of trees and vines were pruned, the roots should be treated in the same way. He was in favor of applying the manure in the furrows, but used a disc coulter, so that the surface roots were cleanly cut, and not merely dragged along the surface. That caused plants to make new roots each season, so that manure placed in the furrows encouraged the plant in that process. Mr. E. Filsell agreed with Mr. Moore that the best results were obtained by broadcasting the manure after ploughing and harrowing the same in.

MALLALA (Average annual rainfall, 16.88in.).

August 1st.—Present: eight members.

Homestead Meeting.—The meeting was held at Mr. T. Weatherill's homestead, and Mr. H. Catt contributed a paper on bare fallowing. He said ploughing should be commenced as soon as seeding operations were completed. The main advantage of early fallowing was that it enabled the land to hold the moisture better, through having the surface broken up. In some soils early fallow could not be worked to advantage. The early broken land was beaten down by early rains, and tended to set harder than if it had not been ploughed. Where such was the case, it was wise to leave the paddock until later in the winter. Some farmers contended that with early ploughing the land was overrun with weeds, but he thought that could easily be checked by keeping sheep on the fallow. If one had both heavy and light lands to plough, it was better to work the light land first, or else trouble would arise in consolidating it in order to form a good seed bed, whereas with the heavy land one could form a good seed bed by cultivating, &c. In districts where late spring and early summer rains were frequent, fallowing could be pushed on later in the year, but everything depended on the quantity of rain the fallow was likely to receive before seeding. There was a difference of opinion as regards the condition of the fallow during winter months. Some preferred to work the land to a fine tilth as soon as ploughed, while others advocated leaving the land in a rough state during the winter. He thought that, apart from exceptional cases, it was better to work the cultivator and harrows during the spring months. The object of all spring and summer tillage of fallow, after the requisite tilth had been secured, was to break up any surface crust that might form after rain had fallen, and so minimise the loss of moisture through evaporation and capillarity, and, secondly, to destroy all weeds, and as much as possible prevent the distribution of their seed.

NANTAWARRA (Average annual rainfall, 15.90in.).

July 28th.—Present: seven members.

Motive Power on the Farm.—In submitting a short paper, in which he discussed the relative merits of tractor and horse power on the farm, Mr. W. Dixon expressed a preference for the latter. He had come to this conclusion after considering the natural difficulties, such as drift sand, which existed in that district. For the cost of a tractor the farmer could purchase a team of horses, and with ordinary fortune the team would be maintained at about the same level, with little extra cost, whereas the value of the engine depreciated. In discussing the subject, Mr. Nicholls expressed the view that tractors were not yet of sufficiently high standard, but eventually they would be used for part of the work on the farm. Mr. W. Smith thought it necessary that the tractor should drive from the four wheels, or have a caterpillar belt system. Mr. Sutton reported having ploughed eight acres on 9galls. of kerosine and ½gall. of oil.

NORTHFIELD (Average annual rainfall, 19in.).

August 7th.—Present: six members.

Successful Dairying.—In a paper dealing with this question Mr. E. L. Conole said the beginner, having selected the dairy farm and erected the necessary yards and bails, should take care that they were of a modern design, and that the sanitary surroundings would pass inspection. To expedite milking there should be a bail for every cow, the floors should be of brick and well drained; that added to the comfort of the man and beast. He believed in the system of feeding at milking. The cow gave her milk more freely, and it had a tendency to make them docile. He would break them in without a leg rope. He favored the Jersey type of milking cows, as they were of a quiet nature, and were also small feeders, and as butter producers their records were well known. There were some other fine breeds, notably Shorthorn and Holstein, the latter being very good milkers. Being large-framed animals they had an advantage over the Jersey in that when their milking days were over they brought considerably more as fat stock. He thought a dairyman should breed his own stock by selecting calves from his best milkers, and obtaining the services of the best bull that was procurable. The number of cows kept depended on the area of the holding, but if 20 cows were in milk all the year one man and his family would be well occupied. There were many other things to be done besides milking on a dairy farm, such as preparing the feed, feeding calves, pigs, &c. The best branch of the dairying business was to sell the milk in bulk to the retailers. That saved a lot of work in separating. If, however, one was unable to do that the milk should be separated on the farm and the cream sent to the factory; the skim milk could then be utilised in the raising of stock, pigs, poultry, &c. Care should be taken to keep the milk and cream free from flies and dust, the separating should be carried out as soon as possible after milking whilst in its natural warm state; that would mean cleaner skimming and a greater return of butter fat than if the cream was allowed to get cold. One of the factors in successful dairying was to procure the feed at a right price. It was well to keep that in mind. A heifer should not be mated before she was 18 months old, thereby bringing her in at two years and three months. She should be then well grown, and would display her quality at that age. A milking cow was highly sensitive, and should not be beaten or excited. The cows should be sheltered in very cold weather, and if grazing on the open windbreaks should be provided. He did not favor the rugging of cattle. Lucerne was the best summer fodder, and given a plentiful supply of that feed a cow of quality would give her best results. In winter perhaps good hay chaff with plenty of bran was the best that could be given in addition to the natural herbage. It was well for the dairyman to make himself acquainted with the common ailments and the treatment of the cow—that would save him time and expense. Almost every owner of dairy cows had experienced trouble with milk fever. When a cow came in with a flush of milk in the spring she was very liable to drop with the fever, and it was well to keep an air syringe and teat tube on hand, for if early attention was not given the cow would soon die. When the udder was inflated with air she would soon be on her feet. A good plan was to rub some mustard mixed with olive oil along the spine from tail to head. That warmed the spine, and caused a circulation of the blood to the brain (milk fever was a form of paralysis). Abortion in dairy cattle was another source of trouble at times, and as that was contagious it was well to separate the cow so affected from the rest of the herd. Once a cow had slipped her calf it was seldom that she would hold again, and it was advisable to fatten her for the market. Another trouble that caused a deal of inconvenience to the dairyman was sore teats. He believed that prevention was better than cure. He advised preparation consisting of white vaseline 4 parts, boracic powder 1 part, to be rubbed into the teats and bottom of the udder for the first two weeks after calving at each milking. That kept the teats nice and soft, and prevented them from cracking and setting up small sores which grew bigger if neglected, and were very difficult to heal. He had found a solution of weak washing soda very effective in drying sores.

ROSENTHAL.

August 7th.—Present: 24 members and 17 visitors.

Poultry Raising.—In a paper dealing with this subject Mr. C. Kleinig said eggs should be set to hatch, preferably about September. One should not breed from pullets' eggs, nor from eggs that were over a week old. Any dirty eggs should be washed before being placed in the machine. It was not wise to set travelled eggs until they had rested 24 hours. Each egg should weight not less than 2ozs. When the chickens hatched they would require no food for 36 hours. Plenty of fine sharp charcoal and shellgrit should be given to them. Cleanliness was most essential, and the bedding should be changed at least once every third day. If that were not done the bedding was apt to clog the chicks' feet, and that would soon render them incapable of moving about freely, and they would very soon die. A hopper for holding dry mash, &c., could be made from a kerosine tin with a slotted hole cut at the bottom of one side, and a shallow tray placed in the tin. If the tin were filled with mash it would slowly gravitate into the tray, but care should be taken that the chickens did not tread on the food. That could be prevented by placing a few wires across the tray. It was necessary for the health of the chickens that they should have plenty of scratchings, but that should be done by keeping their bedding nice and clean. He recommended fine crushed wheat, milled oats, skinless barley, maize, and peas mixed with fine charcoal, and meat meal as a suitable food. Chicks one month old should have a little bonemeal added to their food. They should also have a liberal supply of chopped green feed. He had found a little fresh milk mixed with water act as a very good stimulant to young chicks. The drinking utensils should be kept very clean, and washed every day. As the birds became older they needed much heavier foods, such as wheat, bran, meat and meat meal.

Handling Foals.—In a short paper on this subject, Mr. C. Zerk said that foals should be accustomed to handling when they were running with the mare and when they had been weaned. If that were done it would be found that these lessons would never be forgotten, even though the colt was not again handled until he was two or three years old. He thought that in the majority of cases it was only the timidity of the animal that caused it to rebel, and that could only be remedied by gentleness and firmness on the part of the person breaking in the horse. Punishment was of course necessary, but it should only be given when a fault was committed. He had found that by the early handling of foals they did not knock themselves about nearly so much as raw colts, and they were more reliable when broken into work.

SADDLEWORTH (Average annual rainfall, 19.69in.).

August 4th.—Present: 12 members.

Preparation.—Under the heading "Preparation," a paper was submitted by Mr. W. H. Ashton, in the course of which he urged the importance of increasing production for the purpose of repairing the ravages of the war. There was a possibility of the cost of producing wheat overtaking its sale value. The solution was to be found in increasing the production of the lands already in occupation, not only in so far as cereals were concerned, but also livestock. "Just how this increased production can be brought about," the paper continued, "is one of the great problems of the future, and this has been written more with the idea of pointing out the need of a change than of making any dogmatic assertions as to how it is to be brought about. Whilst much can still be done by improving methods already in vogue, it seems to me that we will have to evolve a scheme whereby, instead of a farm of, say, from 500 to 1,000 acres supporting one family, as at present, it may be made to carry twice or thrice that number. One of the likeliest solutions of the problems will, I think, be to go in for a system of rotation cropping, as outlined in a paper read here a couple of months back. This would involve a considerable outlay in subdividing farms, &c.; but once the system was established the results would be very far reaching and beneficial. For instance, a farm so worked could be made to carry, and as a matter of fact would be obliged to carry, a greatly increased number of livestock. These in turn would require attention, thus opening up another avenue of employment, and, incidentally, would improve the land by their droppings, and give us a chance to open up a profitable export trade in meat, to say nothing of the fillip that would be given to the dairying and pig-raising industries. The harvesting of so many crops would make it necessary for the farmer to employ much more labor. Good farm hands are scarce, but once farm life is made as attractive as it should be, men will be found. Some farms hire extra hands for seeding, and again for harvest, only one man being needed for all the year. This is not always suitable for employer or employee. By this system of cropping and stock raising, instead of casual labor, men could be kept permanently. One plan I know has answered well has been to give the man a small bonus, and so make him feel more interested in his work. In the case of a married man, it would be found a good plan, I think, to provide him with a house and small plot of land on the farm, whereon he could do a bit of gardening, or even keep a cow and a few fowls. By this means the farmer should have a chance of always keeping a reliable, steady man in his employ.''

WATERVALE (Average annual rainfall, 27.17in.).
July 9th.—Present: eight members.

Annual Meeting.—The Hon. Secretary (Mr. F. N. Hamp) read the annual report, which showed that seven meetings had been held, with an average attendance of 10 members, during the past year. The election of officers followed. Discussion took place on the trouble that was being experienced in regard to seeding operations, on account of the very wet weather. Some members stated that they had to resort to broadcasting. Only in rare instances was seeding finished, and it was expected that quite a large area would remain unsown.

ANGASTON, August 3rd.—The annual meeting of the Branch was held, and the Hon. Secretary (Mr. E. S. Matthews) presented the annual report, which showed that 11 meetings and one homestead gathering had been held.

BALAKLAVA, July 21st.—Discussion took place on last season's plots in connection with the six years' wheat competition.

GAWLER RIVER, July 30th.—Mr. A. Bray gave an address on ''The Vine,'' in which he stated that it was a mistake to leave vines unpruned. Different vines needed different methods of pruning. In the case of currant growing it was necessary to cincture the vine to obtain best results. Sultanas should be pruned with long rods. He had found that stable manure applied to vines would give good returns.

MALLALA, July 2nd.—The Acting Secretary of the Advisory Board (Mr. H. J. Finnis) delivered an address on ''The Agricultural Bureau,'' in which he dealt with the working and management of country Branches.

ROSENTHAL, July 4th.—The Government Horticultural Instructor (Mr. G. Quinn) gave a practical demonstration on pruning fruit trees. The Government Viticultural Instructor (Mr. H. E. Laffer) also gave a demonstration on pruning vines, and during the evening a lecture on the cultivation of the vine.

SADDLEWORTH, July 7th.—The annual meeting took place, and officers for the coming year were elected. Mr. A. Jamieson delivered an address on ''Pig-raising.''

SALISBURY, August 7th.—The Government Poultry Expert (Mr. D. F. Laurie) attended the meeting of the Branch, and gave a lecture on ''The Poultry Industry for Returned Soldiers.''

STOCKPORT, August 6th.—The Hon. Secretary (Mr. J. Murray) read the annual report, and members discussed topics of general interest.

YORKE PENINSULA DISTRICT.

(TO BUTE.)

MAITLAND (Average annual rainfall, 20.08in.).
August 4th.—Present: six members.

How to Make the Best Use of Stable Manure.—In a paper dealing with this subject, Mr. B. Cornish said the first thing to be done was to build a stack of straw close to the stable, and when winter commenced the horses should be bedded down every night, and the stables cleaned out each morning. All dry straw should be put on one side, to be used again, and the damaged straw carted into a heap, taking care to keep the heap flat, as that would enable the rain to penetrate, and so help to rot the manure. A layer of sand or free soil should be sprinkled over the heap each morning, to help retain the ammonia and other properties, which rapidly evaporated unless that was done. Straw should be placed around the heap when liquid was noticed draining out, and when well saturated, put back on the heap. If there were very much rain, a good covering should be made of straw, as too much rain was not good. After a few weeks he would take a sharp spade, thoroughly turn the heap over, cover it up again, and use it by ploughing in as soon as possible. With respect to liquid manure, the stable should be well drained, and the liquid collected in a small concrete tank and then sprayed over the heap, always using plenty of straw. Mr. Wundersitz favored the pit system. Mr. Bentley said a good plan was to cart the manure straight to the paddock from the stable, and then plough it in. Mr. Tossell also favored that plan. Mr. Jarrett had received good results from poor land that had been dressed with stable manure.

MOONTA (Average annual rainfall, 15.22in.).

July 28th.—Present: 14 members.

THE LAYING OUT OF A FARM HOMESTEAD.—Mr. A. B. Fergusson contributed a paper on this subject. He said settlers did not as a rule give enough forethought to the selection of the site and the laying out of the homestead. If possible the house and sheds, &c., should be built on the centre of the farm, with as many paddocks as possible opening to them, thus a good deal of time in travelling to and from work would be saved. One could always get on with the work of the farm much quicker when the team could be worked almost up to the stable gate. Another question that had to be considered, and one that often determined the position of the homestead, was water, and very often a central position had to be abandoned on that account. He believed it would pay to leave a central position to be near water. An elevated position should be chosen so that the homestead could be well drained; that added to the comfort and convenience of getting about the house, stables, and surroundings. When the house was built consideration should be given to erect as many conveniences as one could, especially did that apply to the kitchen. A wire netting fence should be put around the house, and a few trees planted. The stables should be built about 2½ chains away from the homestead in a north-easterly direction. They should have a small paddock on the front side, with gates opening into the various paddocks. He favored the chaff-shed on one corner of the stables and the stalls leading in each direction. The men's quarters should be arranged conveniently between the house and the stables. A paddock of about five acres should open from the cowshed, into which the cows could be turned at night. The pigs' quarters should be roofed and paved with stone. The barn and implement shed could be joined, but where it was possible one should have the barn built about the level of the ground. Fowls shed should be kept at a distance from all the sheds and stables to prevent them roosting on the harness and implements.

MINLATON, July 25th.—The Hon. Secretary (Mr. Jas. McKenzie) read the annual report, which showed that six meetings had been held, and four papers read during the past year. In reviewing the work that had been done the Secretary urged the members to attend regularly and take a lively interest in the working of the Branch.

WESTERN DISTRICT.

BUTLER (Average annual rainfall, 16.61in.).

July 2nd.—Present: 11 members.

HOMESTEAD MEETING.—The annual meeting was held at the residence of Mr. D. B. Butler, and the Hon. Secretary (Mr. J. Owen) read the annual report, which showed an improvement on the previous year's work. The meeting took the form of a debate on the "Stripper and Motor Winnower v. Harvester." Mr. H. J. Hughes opened the debate, and spoke in favor of the stripper and motor winnower. He said the cost of two 8ft. strippers and power winnower would not greatly exceed that of two harvesters. Mr. C. A. Jericho said the harvester was quicker, as it was always in the crop, but a stripper had to pull out every two or three rounds to empty at the heap, and as large heaps were necessary for the power winnower the stripper had often to travel a fair distance to the heap. He thought the harvester was a great labor saver, as four men were required to work the winnower. Mr. J. M. Bawden favored the strippers, because they could commence reaping earlier in the morning. The harvester threw heads of wheat out of the back of the machine. Mr. A. H. Pfitzner said that under present conditions of labor shortage he favored the use of the harvester, and considered that waste was due to the fault of the driver of the machine.

BUTLER (Average annual rainfall, 16.61in.).

August 7th.—Present: 14 members and one visitor.

SHARE v. DISK PLOUGH.—Mr. S. M. Bawden opened a debate on this question, and spoke in favor of the share implement. He advised putting on all the draught that was possible, that would pull most of the stumps out of the ground. Not only did that clear the land, but it meant that much labor would be saved in regard to shoot cutting. Another great advantage to be gained was that one could get more wheat to grow, thus a better stubble burn could be affected. That also tended to destroy shoots. By allowing the stumps to remain in the ground he considered that at least one-third of every acre cropped was non-productive, and in addition a large amount of moisture was taken from the land by mallee stumps. He said a number of farmers in that district used disk ploughs on account of the shortage of labor, but he felt sure it would pay better to first of all free the land from stumps. It had been proved conclusively in that district that land free of stumps had yielded double the return from similar land not so cleared. Mr. D. B. Butler then spoke in favor of the disk plough. He said he had worked the share plough for a number of years, and had only lately worked the disk implement, but he was quite satisfied that where there were shoots and rubbish the disk was the only implement that would make a successful job. There was no choking or dragging, in fact one only had to sit on the seat and drive all day. Some people said that the disk plough gave horses sore shoulders. He thought that was because the horses were not rested occasionally. If the ploughman stopped every few rounds for a few minutes there would be no sore shoulders. The disk was the cheaper to work, and also easy to repair. Mr. T. L. Butler favored the share implement, as it ploughed out the stumps. Every stump pulled out was a step to a clear paddock, and it was certain wheat would not grow on wood. He had worked both implements, share and disk, but thought the share the better and more profitable. Mr. A. H. Pfitzner also spoke in favor of the disk plough, he had made the one implement serve the purpose of plough, shoot cutter, and scrub roller, and in each case the disk had done good work.

CARROW.

July 26th.—Present: six members and one visitor.

FALLOWING.—Mr. H. H. Freeman contributed a paper on this subject. He said fallowing should be commenced as soon after seeding as possible. That enabled one to get most of the winter's rain into the land, thus conserving moisture for the next year's crop. He preferred the use of the share plough, as one could plough to a more uniform depth. He admitted that when weeds were very bad it was advisable to work a disc implement. It was difficult to fix any definite depth to which one should plough the land, as the quality of the soil varied considerably; but he thought one should not fallow deeper than 3in. on new land in that district. Harrowing should next be commenced, and the land worked in the opposite direction to that in which it had been ploughed. Sheep did well on the fallow, as they killed many weeds which the cultivator and other implements missed. Sandy soil should not be worked too much, as it was inclined to drift. Mr. F. Birt did not favor breaking up land when dry, as he had found that encouraged the development of take-all.

EDILLILIE.

July 28th.—Present: 11 members and three visitors.

Laying Out a Farm Homestead.—In a paper dealing with this subject Mr. Palm said that in building the homestead it was important to select a site as near the centre of the block as possible, providing there was a good water catchment. All buildings should be put up in such a way that additions could be made if wanted at any time. In planning the dwelling careful consideration should be given to make as many conveniences as possible for the women folk of the homestead, especially did that apply to the kitchen. Ample space should be left around the house for gardening purposes, and planted with a hedge to serve as a break wind. Fruit trees and vines and all kinds of vegetables did well in that district, and if planted during the first year they would be growing while other improvements of the farm were being attended to. It was a good plan to plant gum and pine trees, but they should not be put down too near the garden. The stable should be built a few chains from the house, large enough to accommodate 12 horses, and a loose box for foals or a sick horse. Where stone was scarce it was best to construct the stables of wood and iron, with a gable roof, the loft being for use as a storage room. There should be 12ft. to 14ft. in front of the mangers in order to make room for a chaffhouse and harness shed. Another shed could be erected along the stables in which the chaffcutter, corncrusher, &c., could be housed. At the other end a shed could be made mouseproof for the storage of oats, bran, and pollard. The remaining portion of the shed would hold about four or five tons of hay. The barn should be some distance from the stables, in case of fire, and should be built of wood and iron. If the walls were built about 10ft. high it would allow sheds to be built at each end in which the vehicles could be kept. An implement shed should be erected some distance from the other buildings, about 70ft. x 25ft. was a suitable size, and all implements kept under cover when not in use. The paddocks should be laid out adjacent to the homestead with small paddocks adjoining the house. The fences should consist of six wires, one barb on top and one through the post, with four plain wires underneath. Gates should be made 14ft. wide, that would enable four horses abreast in an 8ft. stripper to pass through. The fowls should be enclosed in a yard fenced with 6ft. netting, as foxes were becoming more numerous every year. It was a good plan to have small pens in the yard for breeding purposes. The pigsties should be built some distance from the house, and the animals should have a yard to run in. This being the annual meeting the election of officers for the coming year took place.

ELBOW HILL (Average annual rainfall, 11in. to 12in.).

July 28th.—Present: 12 members.

Mixed Farming.—In a paper dealing with this subject Mr. J. B. Wake said that district was well suited for farmers to undertake various sidelines. Sheep, pigs, and cows should be kept, and in a season like the one just ended the return from that class of stock would be found to materially assist in the upkeep of the farm. It was a fact that in that district many farmers had to purchase the supplies of butter, &c., for the use of the household. Although an advocate of mixed farming he did not favor one having a large mixture of farm implements. He had purchased a 10-furrow disc plough, and had used it for fallowing as well as cultivating. The writer concluded by stating that producers should seek to obtain as much from their holdings as they possibly could. In discussing the paper Mr. A. Chilman said on account of the shortage of labor at the present time it was difficult to attend to sidelines, but he considered farmers should devote as much time as possible to mixed farming. Mr. R. S. Mills spoke in favor of sidelines, and he had found sheep and pigs a necessity on the farm. Mr. G. B. Wake said sheep should be kept in conjunction with wheat growing. Mr. P. C. Wake had found sidelines most profitable, especially sheep and cattle. Mr. T. Wildman also spoke in favor of keeping sheep, cattle, and pigs. Mr. A. C. Wake thought sheep the most profitable sideline. Mr. A. C. Dawkins said farmers should pay more attention to sidelines, as that district was especially well suited for sheep farming. Cows, pigs, and fowls, if properly attended to, would also be found to bring in good returns.

GOODE (Average annual rainfall, 12in. to 13in.).

August 8th.—Present: 15 members.

Annual Meeting.—The annual report was read by the Hon. Secretary (Mr. W. Folland), and the election of officers for the coming year took place. Mr. H. Will initiated a discussion on "The Best Method of Protecting Wheat and Grain from Mice." He advised building barns or sheds on a high stage, and making the supports mouseproof. Mr. W. G. Morcumbe advocated building a mouseproof yard of plain sheet galvanized iron, and then covering with a permanent shed. The upright posts of the shed should be inside the iron. Mr. W. Folland reported that he had erected a sheet iron yard with plain iron 3ft. wide that had been let into the ground 1ft. and bolted to angle iron posts, the top bolt hole 1in. from the top also held a small strip of tin about 6in. x 3in., bent out on a slope to form a verandah over the joint of iron to check any mice that might climb up. In erecting a permanent structure he thought the iron should be let into the concrete floor, and the space between the top of iron and roof enclosed with wire netting to protect from fowls, &c.

GREEN PATCH (Average annual rainfall, 26.56in.).

July 30th.—Present: 10 members.

Annual Meeting.—The election of officers for the coming year took place, and the Hon. Secretary (Mr. R. L. C. Sinclair) presented the annual report. Mr. Schmerdt initiated a discussion on best fodder grasses, and stated that he had obtained best results from sorghum. Mr. Gore had only experienced the growing of fodders in the lower lands, with maize and sorghum, and these had given him a much better feed than millet. Mr. Murray had excellent results from sorghum; he had cut it for feeding purposes three times. Mr. Murray also spoke highly of red mangolds, and said they had proved a great boon to him as cow feed. He fed his sheep during the winter months, and he had found it very profitable. Mr. Parker said, in reference to summer fodders, he had grown sorghum on his yacca land with excellent results. The main point in growing sorghum was to work the land well, and sow about 3lbs. of seed to the acre, and sow through every hoe. With reference to millet, he had grown a very fair crop on his yacca land. He also advised hand feeding of sheep during the winter, and in conclusion thought if farmers in that district went in for hand feeding, they would do much better than growing only wheat and barley. Mr. Whillas favored growing oats and barley for grazing purposes. Mr. Sinclair said he had grown about 200 acres of kale for his sheep, and that crop never once failed him, and was an excellent fodder for fattening purposes.

MOUNT HOPE.

July 13th.—Present: five members.

Sheep on the Farm.—In a short paper on this subject, Mr. J. S. Colbert said every farmer should keep a few sheep on his land. He preferred a young ram for the summer lambing. He favored Merino ewes crossed by a Lincoln or Shropshire ram, as they grew much more quickly and kept in good condition; but good fencing was necessary. If one bought 50 ewes and bred 40 lambs, one would have enough for household uses and a good number left for trading purposes. Mr. G. A. Vigar said he had had a good lambing from his ewes last season. Mr. F. Myers also thought that summer lambs could be raised to advantage.—The Hon. Secretary (Mr. G. A. Vigar) read the annual report.

KOONIBBA.

August 2nd.—Present: 11 members.

Farm Construction.—In a paper on this subject Mr. E. Lutz said he would select a farm comprising 1,200 to 1,500 acres, which should be worked by one man, and, taken on an average, 100 acres of land should be cleared each year. The site chosen for the homestead should be on the highest position obtainable, and as near the middle of the holding as possible. The stables should be built on the west side of the house, the building being large enough to accommodate eight to 10 horses. One or two good mares should be secured from which to breed. A large implement shed should be erected so that no implements would have to stand out in bad weather. A blacksmith's shop and tool shed should not be overlooked; that would enable the farmer to repair damaged machinery, and would also save time and expense. A cowyard and pig stye could be built adjacent to the stables. Wheat stages for seed and horse feed should be kept at a good distance from the fowlhouse, a background of scrub on the north-west and south sides of the homestead would act as a breakwind. Good water catchments should be watched before making a tank, so that the tank could be built in the right place. It was unwise to build the tank in a hollow, as that would not allow for an overflow. A good roof should be put on, and the tank fenced with wire netting to make it sheep and rabbit proof. Gates were necessary, and those should be made so that stock would not injure themselves. When clearing the land he would cut all teatree and white mallee posts out, as there would always be plenty of use for them. Mr. E. O. Dahl had found it a good plan to cut all posts a year before putting them to use. If that were done, and the bark taken off, and the bottoms painted with tar they would not decay so quickly, neither would white ants trouble them so readily.

KOPPIO (Average annual rainfall, 22.40in.).

July 31st.—Present: 10 members and one visitor.

Farming on Eyre's Peninsula.—Mr. W. R. Richardson, in the course of a paper entitled "How to Increase Farm Profits," said:—"Most of us have found out during the last few years that we are not going to make our fortunes at wheatgrowing in this locality, in fact farming on the best land at the present time is not so remunerative as it should be. Every farmer should do his utmost at the present time, seeing what a serious shortage there is in the world's supply of wheat. There are numerous reasons which are making the profits on wheatgrowing diminish. The price of everything necessary to the production of wheat has been on the up grade for years. Implements have been steadily going up in price. Superphosphate rises in price every year. Bags since the introduction of the new cornsack have been an exorbitant price. It would also surprise anyone if he reckoned up what the agency charges on his purchases and sales came to in a year. I recognise that the middleman is an assistance to a great extent, but I think a long way too much of the profits of a farm go in agency charges, &c. There are many difficulties connected with wheatgrowing in our district. In the first place the country is of a hilly nature, which makes the working of the land much more difficult and expensive. There is always a considerable amount of patching to do, making small lands and awkward pieces which take up more time than plain country. With our heavy rainfall the land soon becomes boggy, especially in the lowlying places, so that if seeding is not finished early these places have to be left. During May and June usually a good deal of broken weather is experienced, which delays the work when it should be pushed on at all speed. Then in July and August, when we should be fallowing it often happens that we cannot get on the land, and so the fallowing is delayed until late, which means a smaller area of fallow. My experience leads one to think that we should not depend so much on the wheat, but pay more attention to some of the other lines on the farm. The most important and profitable of these is undoubtedly sheep. Properly cared for sheep are most profitable, and it will pay us to give far more attention to raising fodder crops and hand feeding than we have done in the past. Eyre's Peninsula is becoming an important farming and producing area, and we are sure to get more conveniences in the way of markets as time goes on. Recently a butter factory has been opened in Port Lincoln, and I do not see any reason why a freezing works should not be established in the future, and our particular district should be very suitable for raising lambs, and also for dairying. The natural grasses here are slow in growth during the winter. In order to raise good lambs we must provide feed for them by growing early fodder crops, or by hand feeding. Feeding the ewes on oats or barley in troughs may seem to be expensive, and entail a lot of trouble but it is not by any means so. Half a pound of oats a day mixed with a little hay chaff or salted cocky chaff will keep a ewe well if she has a paddock in which she can pick up something in addition. At the present price of oats, compared with meat, it will pay better to feed them to the sheep. Even if we had to feed for two months a bushel of oats per sheep would be ample, and as an ordinary lamb is worth at the present £1, it is evident that the sheep will be the best market for our oats. Then we should go in more for green fodders, and for this purpose we need small paddocks. Sixty acres of fodder crops divided into four paddocks will keep many ewes through the winter. I would recommend sowing different fodders, such as oats or barley mixed with rape and white mustard. If sown in March or early April they will be ready to carry stock in May. They should be stocked lightly at first. As oats can be sown before the rain with no fear of malting I should get in a couple of small paddocks as early as possible. Rape and mustard seed is likely to deteriorate if it remains in the ground any length of time. Oats, although not relished so much by the stock, will stand more feeding than barley, in fact I prefer Cape or Algerian oats in a general way to any other early crop. If we have three or four small paddocks the sheep can be moved frequently, so that they are not fed too bare, and with an occasional run in a large paddock it is surprising how many can be kept in this way. About the beginnng of August, when the natural grass and herbage are starting to move, one or two of these small paddocks could be turned over and sown to peas or kale, both very valuable fodder. The sheep droppings and what green growth there was left would also make valuable manure turned in at this stage. It will be found that the heavy stocking on these small paddocks will greatly enrich them, and by constantly working in fresh ground the natural carrying capacity of the farm will be greatly increased. At the present time there is a difficulty in marketing lambs, but even if we have to ship them to Adelaide I am convinced it would pay us, and if farmers could be induced to go in sufficiently for raising lambs, a local market would soon follow. There is far less expense and worry about sheep than wheat growing, and less trouble and work also, but we must always remember that we must feed them liberally and also keep good stock, as a good sheep will eat no more feed and always command the attention of buyers.

WARROW.

July 28th.—Present: eight members.

Fly-Blown Sheep.—Anyone who was troubled with the maggot pest, remarked Mr. H. J. Puckridge in a paper, could guard against that trouble by dipping the ewes with a good poisonous dip a month or so before lambing. He had not lost a single ewe that had been treated during the past season. He was an advocate of shower dipping rather than the use of the plunge bath. In the first named method the sheep were not knocked about so much, and it only required the services of one man. He had used the shower principle for four years with most satisfactory results. It being the annual meeting of the branch, the election of officers for the coming year took place.

YADNARIE (Average annual rainfall, 14.09in.).

July 27th.—Present: seven members.

Pig Raising and Feeding.—In a paper on this subject, the Hon. Secretary (Mr. A. J. R. Carn) said that one undertaking pig raising should choose animals that were quiet, good feeders, and well formed. The pigs should be housed in a dry, comfortable sty and fed well and regularly. Various opinions were given as to the best class of food for fattening pigs, but he thought that if a portion of the wheat crop were cut as hay, the pigs would eat the straw as well as the grain, which would help them to digest their food. Separator and skim milk mixed with other meals made an excellent fattening food. It was a good plan to have a paddock of two or three acres planted with a crop of green feed in which to run the pigs. In the discussion that followed, Mr. A. Sprigg said that that district was handicapped by being such a long distance from the market. Mr. J. E. Quick spoke of the way in which refuse was treated at the Agricultural College, at Roseworthy. Mr. W. L. Brown thought that wire netted paddocks constituted the cheapest method of enclosing pigs.

YANINEE.

July 28th.—Present: 11 members and eight visitors.

Question Box.—The meeting took the form of a question box, and various questions were asked and answered by members. As to harrowing growing crops in that district, the consensus of opinion was that it would be of great benefit. Mr. Noble, who has had considerable experience with poultry, expressed the opinion that a cross between a Black Orpington and a White Leghorn was the most profitable hen. Mr. H. Brown asked members which was the most effective way of dealing with the rabbits at that time of the year, when greenfeed was plentiful. Some of the remedies suggested were as follows:—Trapping, ferreting, filling in the burrows after putting a sheet of newspaper in them, strychnine and wheat, and poisoned jam on sandalwood twigs. The general opinion was that the poison cart was most effective, provided it was used when no green feed was about.

YEELANNA.

July 28th.—Present: 13 members and four visitors.

Afforestation on the Farm.—In a short paper on this subject, Mr. T. B. Cronin said that if trees were to be planted on heavy soils, he would advise ploughing a few deep furrows and then deepening the holes with a bar. In lighter or loamy places, a hole could easily be excavated and prepared soil placed therein. It was advisable to plant a few trees in the corner of each paddock to make a shelter for stock during the hot summer months. The variety of trees most suitable for that district were Sugar Gums and the Alleppo Pine.

COLTON, August 4th.—The election of officers for the coming session took place. A lengthy discussion on mice and weevils followed.

MINNIPA, August 4th.—Mr. L. J. Cook read a paper on "Fertilizers," in which he explained their value for wheat growing.

ROBERTS AND VERRAN.—The experimental plots sown on June 24th and 26th, 1916, by A. T. Comley, with varying quantities of seed and ¾cwt. of super. on one acre of fallowed land returned as follows:—Mixed Yandilla King and Marshall's No. 3, 45lbs., 30bush. 53lbs.; 32lbs., 31bush. 12lbs. Golden Drop, 30lbs., 24bush. 9lbs.; 45lbs., 21bush. 52lbs.; 60lbs., 20bush. 7lbs. Federation, 60lbs., 30bush. 36lbs.; 45lbs., 32bush. 1lb.; 30lbs., 24bush. 32lbs. The plot on which the last-mentioned result was secured included a patch of stony ground, and about one-third of its area was badly affected by "take-all."

ROBERTS AND VERRAN, August 14th.—Results of the manurial tests conducted by Mr. F. Masters were given as follows:—No. 1, ½cwt. super. guano, 28/32 per cent., 10bush. 32lbs.; No. 2, ½cwt. superphosphate, 36/38 per cent., 13bush. 8lbs.; No. 3, 1cwt. super. guano, 14bush. 31lbs.; No. 4, 1cwt. superphosphate, 14bush. 30lbs.; No. 5, ½cwt. superphosphate and ½cwt. super. guano, 15bush. 5lbs.; No. 6, 1½cwts. super. guano, 11bush. 48lbs.; No. 7, 1½cwts. superphosphate, 11bush. 34lbs.; No. 8, ¾cwt. superphosphate and ¾cwt. super. guano, 13bush. 53lbs. Rainfall during growing period, 13.48 in.; total rainfall, 15.11in.

SALT CREEK, August 4th.—The Chairman initiated a discussion on sore shoulders, in which he advocated the use of backbands and light swings. Mr. Frost thought back bands were liable to cause sores on the back. Mr. H. G. Hornhardt considered insufficient horses caused many sore shoulders, and recommended soaking the collar to work on a young horse.

EASTERN DISTRICT.

(EAST OF MOUNT LOFTY RANGES)

BOOKPURNONG EAST.

August 4th.—Present: 12 members.

Poultry Keeping.—In a paper dealing with this subject, Mr. S. Hannan gave preference to Plymouth Rocks as most suitable for table purposes, and White Leghorns for laying. In building a fowlhouse, he had found a good substitute for iron could be made from bags, and after having washed and disinfected the shed once a month, he had experienced no trouble from vermin. He mentioned good grain, lucerne, shell grit, and a mash occasionally as being the foods most suited for fowls. A good plan was to have a dry scratching pen; that would give the birds exercise in obtaining their food. He considered that the hens should always be separated from the roosters, except during breeding season.

BORRIKA.

August 4th.—Present: 16 members and three visitors.

FARM BUILDINGS.—Mr. Tonkin, in a paper on this subject said that first consideration should be given to choosing a suitable site for building the homestead. It should, if possible, be situated in the centre of the block, in order to ensure expeditious working. Other items should also be borne in mind, the most important of which was good drainage and good quality soil, the latter with the view to establishing a garden, and for growing fodder crops within easy reach of the homestead. Having selected the site, one should proceed with the erection of a bore and windmill and a 2,000gall. storage tank to be erected on a 10ft. stand to allow for a good pressure for irrigating purposes. The homestead should, if possible, be built of stone. The most suitable style, he thought, was the bungalow, as it was very cool in summer time. If it was not convenient to build the house of stone iron would do. Most of the farm buildings could be constructed of iron, as one did not need an expert knowledge of carpentering. He would build a large shed, say 60ft. by 30ft., with a gable roof, and closed in on the north, west, and south sides. The shed could be partitioned off to make stables, harness room, chaffhouse, and trapshed. The doors should be made on the sliding principle, as that would take up less room. The mangers should be 24in. wide and 20in. deep, with a passageway at the back for the convenience of feeding. If stalls were provided they should be 6ft. wide, with swing rails. Water should be laid on to the horse yard, and a trough provided. A barn with implement shed attached was still another necessary building, in fact one of the most important. The implement shed should be built without any central uprights, so that the machines, which were only taken out of the shed once a year, could be stacked closely together, thus saving at least 50 per cent. of the floor space. All outbuildings should, if possible, be erected on the east side of the residence, where there would be very little trouble from dust arising from the traffic of stock.

BRINKLEY.

July 28th.—Present: eight members.

FALLOWING SCRUB LAND was the subject of a paper read by Mr. H. Pearson, in which he said, after having decided which paddocks were to be fallowed, the first thing to do was to cut all shoots, rake them into rows, and burn them. He would pick up all loose stumps and stones, otherwise it would be impossible to do good work. Another very important point was to clear all fences around the paddock, for if bushes were allowed to grow alongside of them, they would hold the drift, and in the course of a few years the fences would be buried. To meet with success, fallowing should be done systematically, commencing immediately after seeding, say the middle of June, and be completed by the end of August. The implement best suited for that work was a good heavy six-furrow plough, cutting about a 7in. furrow and the land should be ploughed to a depth of 4in. Shallower ploughing might give equally good results at harvest time, but would not clear the land so quickly, which was, he thought, most important. It was also impossible to cultivate the land as it should be done while it was thick with stumps. Harrowing should not be left until all the ploughing was completed, but started directly there was a day's work for them. The closer they followed the plough, the better the work would be done. When harrowing was completed, all stumps should be picked up again, and the land cross harrowed, twice if necessary, with good heavy cultivating harrows. The sheep could then be put on the fallow to eat the weeds, as that practice was much more economical than using the cultivator, and, in addition, would enrich the soil. If it was found necessary to work again, that could be done with a V shaped cultivator, as that implement could be worked with less strength and did not leave the land so level, thereby reducing the danger of drift.

CLANFIELD (Average annual rainfall, 16in. to 17in.).

July 7th.—Present: 13 members and eight visitors.

The meeting took the form of a discussion on the two papers that had been read at the Branch's previous meeting. Members first discussed Mr. J. Marshall's paper on "Hints When Selecting a Draught Stallion." Mr. A. H. Wilkins said he did not favor a horse with too much hair, as that did not add to the animal's working abilities. He preferred that a horse should have a good top and clean legs. Mr. F. G. Moar's paper on "Farm Pests" was then discussed. Mr. Marshall said the Scotch thistle was rapidly increasing in that district. He agreed with the writer that rabbits could be kept under by constant use of the poison cart. Constant cultivation was the best method of eradicating the star thistle. Mr. Maynard said that ferrets were very good in dealing with rabbits.

CLANFIELD (Average annual rainfall, 16in. to 17in.).

August 4th.—Present: 10 members and four visitors.

The Culture of the Tomato.—The Hon. Secretary (Mr. W. A. Moir) read a paper written by Mr. A. Ormell, in which it was stated that the varieties of tomatoes that had been grown in recent years showed a marked improvement on those that were in cultivation a decade ago. It would be difficult to find a more prolific plant, or one that would grow under a greater variety of conditions than the tomato. That plant should not be grown on the same land for more than two years in succession. He had found well decayed farmyard manure the best fertilizer. For an early crop the seeds should be sown under glass in July. A bed of the required dimensions composed if possible of light sandy soil, should be prepared in a sheltered corner of the garden, the seeds sown on the surface, and lightly covered with soil. A piece of light calico or similar material for shelter should be stretched across the bed about 2ft. above the surface. If the young plants were growing too thickly he would thin them out when 3in. or 4in. high, when they should be sufficiently vigorous to transplant. When in the seed bed the young plants should be regularly watered and kept free from weeds. When the seedlings were large enough and inured to outdoor temperatures they could be transplanted to their permanent positions, a rainy or cloudy day being chosen for that operation. After the plants were set out a stake should be driven into the ground near each. The plant should be trained to one stem, and as the growth advanced it could be tied to the stake. When the plant had attained the height of the stake the leader could then be taken out. All that was needed in the way of cultivation was to keep the ground loosened and weeds in check. A mulch of partially decayed manure had a beneficial effect on the plant. In planting out it was unwise to overcrowd the beds. The rows should be 4ft. apart, and the plants about 3ft. apart in the rows. A good variety for the early crop was the Market Favorite, and for the main crop Burwood Prize. In the discussion that followed Mr. J. Cockshell said he was in favor of trenching about 18in. deep, and when transplanting he recommended well sheltering the young plants until they were thoroughly established. Mr. F. G. Hoar said by pinching out all lateral shoots one would get earlier fruit and of better flavor and quality, but thought that trenching was of very little benefit on the lighter soils, and recommended Early Dwarf for early crop and Burwood Prize for main crop. Mr. A. Hammond found trenching profitable, but thought one should thoroughly understand staking to make it pay, and advised putting the plants out in the open, when they would be hardier. Mr. A. Wilkins thought planting closer than the writer suggested would give better results, and the heavier soils grew better flavored fruit than the lighter soils, and the plants would then bear for a longer period.

FORSTER (Average annual rainfall, 10in. to 11in.).

August 4th.—Present: five members and one visitor.

The Best Method of Feeding Stock.—Mr. W. Tyler contributed a paper on this subject. He did not think farmers used the feed at their disposal to the best advantage. It was a good plan to cut sufficient hay to carry one through harvesting, seeding, and fallowing, and also enough to provide for a bad season. He stated that during his experience in New Zealand the majority of farmers made a practice of always having a good stack of straw on the farm. When the horses were not working they could be fed once a day on hay and straw chaffed together, that would help to keep them in good condition. He had two cows, and always fed them twice a day on cocky chaff and bran, which enabled him to have a good supply of milk and butter all through the year. He did not favor feeding long hay to stock, as so much of it was wasted. He thought every farmer should have a chaffcutter, and if possible a corn crusher on the farm. Members also discussed various interesting subjects.

GERANIUM (Average annual rainfall, 16in. to 17in.).

August 4th.—Present: 13 members and three visitors.

Pig Breeding.—Mr. W. Pannell, in a paper which he contributed, spoke of the great future this industry had before it. He said it could not be too strongly emphasized, that, if one intended breeding pigs, only the best of stock should be procured. A good boar should be obtained, and the sow should not have less than 12 teats, as that was of great importance while rearing the litter. During farming time the pig should be well fed on foods most suitable to produce a good supply of milk. Mr. Pannell also dealt with items of interest to local pig breeeders.

KI KI.

August 4th.—Present: eight members.

Mixed Farming.—The Hon. Secretary (Mr. L. C. Crouch) contributed a paper on this subject. He said no farmer should rely solely on wheat growing as a source of income. Oats should be grown. In addition to other advantages, they gave a good burn, which was a considerable help to the farmer. Peas, mangolds, and lucerne should be sown, as they made good fodder for stock. Poultry could be kept, and 60 to 100 laying hens would be found to be a profitable side line. If one had the feed, three or four cows should be kept. He favored a cow between Jersey and Shorthorn, as besides being a good milking strain, one would have an animal suitable for killing. Pigbreeding should be combined with dairying, as there would always be a surplus of milk, and a few pigs would well repay any time that might be spent on them. He considered the Berkshire the most profitable pig. The most profitable and the mainstay of mixed farming was the keeping of sheep. Even with the high price of stock and fencing materials, it had proved to be the most successful side line of the farm, providing as they did wool, lambs, and meat for the use of the household. A mixed farm was not complete without a vegetable garden, and where possible one should undertake to have one.

LAMEROO (Average annual rainfall, 16.55in.).

July 7th.—Present: 12 members and three visitors.

Annual Meeting.—The Hon. Secretary (Mr. E. T. Wray) read the annual report, and the election of officers for the coming year took place. Mr. G. Dorman read a paper from the *Journal* on fodder grasses. He had sown several grasses, which were doing splendidly, and in his opinion that district was well suited for the cultivation of such grasses.

MANTUNG.

July 5th.—Present: eight members.

Age of Horses as Indicated by their Teeth.—In a paper on this subject Mr. E. A. Hannaford said the principal guide to the age of a horse consisted in the indications given by the teeth. Alterations took place in the teeth every year from birth up to the sixth year, so that there could rarely be any question of a horse's age up to that date. After the development of the mouth was completed the age could only be determined by the effect of wear in altering the shape of the teeth, by the receding of the gums, and by other such signs. A horse's mouth, when complete, had six incisors in each jaw, and in the immediate rear of these in males, there was one long-pointed tooth called a tusk. There were two crops of incisors, but only one of tusks. These tusks began to appear at about four years of age, but were not fully developed until the last permanent tooth was through. Between three and five years all the marks were very plain in all the permanent teeth. At six the marks were wearing out of the two centre teeth, which came up at three years old. They were plain in the next two, and perfectly fresh in the two corner teeth. At seven the marks had disappeared from the two centre teeth, and were wearing out of the next two. At eight the mark had disappeared from all but the corner teeth, in which they were becoming very indistinct. At nine the marks had completely disappeared. At 12 or 13 all marks had disappeared from the teeth, except for a small piece of enamel shaped like a star, with which the teeth were once coated. He mentioned that grass-fed horses did not lose their marks quite so rapidly as horses fed on hard food, such as crushed peas and a hard grain. If attention were paid to the teeth of the horse a person was purchasing he would seldom be deceived to any great extent.

MINDARIE.

August 6th.—Present: 13 members and four visitors.

Concrete Buildings on the Farm.—Mr. McDonald contributed a paper on this subject. He suggested limestone rubble and limestone and lime as the substances most suitable for buildings in that district, as the rainfall did not compel one to use cement concrete. Limestone and rubble could be obtained throughout the whole of that district, and in many parts of the State within convenient carting distance. First, the plan of the proposed building should be drawn and arrangement made to secure the necessary boards to act as moulds into which the concrete was to be placed. Boards 13in. wide x 1½in. thick would be found quite suitable. The lengths of these boards would depend on the size or shape of the building and thickness of the walls. He had worked up the necessary lengths for a house of four rooms, of two front rooms 12ft. x 12ft. with 4ft. passage, two back rooms 12ft. x 14ft. and 16ft. 9in. x 14ft. respectively; the passage only between the two front rooms. For ordinary farm buildings a 9in. wall well tied with barbed wire was thick enough. In making up the lengths of boards, the thickness of walls should be taken into account, otherwise all outside boards would be short. Further decision was necessary as to whether the whole course of building would be set in one mould or two. For guidance, with all material at hand, two men could mix and erect 100ft. of walling per day. In the present illustration it was desired to make two sections, and, of course, thereby a removal and resetting of the boards after each mould. It was necessary also to decide what openings there would be in the walls, namely, doors, windows, and fireplaces—should the fireplaces be on the outside. With that system of concrete building ⅝in. bolts were required to hold the boards together. In the first item, "doors," measuring 6ft. 8in. x 2ft. 8in. were the standard size for ordinary dwellings, and a skeleton door frame should be provided. One could make these, and the timber required would be one piece of jarrah 3ft. 9in. x 3in. as a door step, one piece jarrah 3ft. 9in. x 2in. for lintel (piece over door), two pieces 7ft. x 9in. x 1½in. deal, planed one side for door jambs. Windows ordinary two-light 28in. x 28in. glass sash windows; also piece 4in. x 2in. jarrah for lintel at side of window would be suitable. The sides and top of those windows should be enclosed with light timber to prevent the concrete interfering with weights, cords, &c. If it was intended to utilise all floor space, for fireplaces the chimney should be outside, and that was a feature of modern building. To do that a strong piece of jarrah 9in. x 3in. or railway iron was required as a lintel upon which to build a tongue for side of chimney and balance of wall. The quantity of bolts was governed by the size of the mould. They were required only at the bottom of the boards, about 4ft. apart. Pieces of ⅝in. round iron 13½in. long with one end threaded and the other just bent about 1in. would meet the case. These could be made locally, and the nuts procured from the merchants; otherwise bolts 12½in. x ⅝in. should be purchased. It was essential to have all these items on hand before building commences. In the setting up of these boards system was essential. A plan on a piece of board with marks at each position for each separate piece of board was necessary. The boards might be the same length, but the bolt holes might not agree. One could imagine the confusion that would arise if that system was not carried out. From the plan it would easily be seen where the different lengths were used.

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Having ascertained the boards required, these could be obtained forthwith, and also the lime. In ordinary circumstances it was profitable to purchase lime, as there was no subsequent interruption with the work. Those items attended to, the next was the site for the building. This should be thoroughly grubbed and cleaned up, otherwise trouble would be experienced when mixing commenced. The dimensions of the building should be defined with stout posts, and carting commenced. The rubble could be tipped inside and outside of the building, which would assist later. The rubble should be clean and free of foreign matter. It was easily reckoned how much was required, and a quantity to that extent should be carted immediately. Then the all-important work of pegging out the measurements of rooms, &c., with foundations, had to be fulfilled. Peg out the building in the main with pieces of sawn timber, and get one corner absolutely true by measuring 8ft. one side of angle and 6ft. the other, the distance between those two points for a true right angle must be 10ft. Finish the measurements along those sides, and repeat that testing at other end of proposed building. Finish the pegging, and then ascertain the distance diagonally across the building both ways; those should correspond. It was imperative that the measurements be true, otherwise future trouble would be experienced. Foundations in sandy country could be dispensed with by digging out a trench about 6in. deep and the boards inserted in hard or clay soil. It would be advisable to make 15in. foundations for a 9in. wall. He would place the foundation at least 12in. in the ground. The ground being firm, a trench should be thrown out 12in. deep by 15in., and same filled in with concrete. The foundations could be levelled by placing pegs at a level in the trench and working to that height. Concrete of a mixture of five parts clean limestone rubble to one of lime would form a permanent wall. The rubble well placed in or out of building, as previously indicated, would expedite handling considerably. In mixing take a grubbing axe and form a small bay along the rubble adjacent to the work, and remove all stones the size of a teacup and larger. The lime should be placed in the bay of the rubble and water liberally applied. Work the lime a little, and apply more water. Cover the lime with moist rubble, and allow same to stand over night, to allow all the lime to slacken. The 15in. foundation would stand 3in. on either side of wall. With that finished, and all the boards accurately measured and sawn square at the ends, the holes for the bolts was the next item. All holes should be made with an ½in. bit 12¼in. from the top of the board. In a 12ft. board holes about 4in. from each end and two further holes at equal distances between those would be sufficient. One pair of boards should be finished and placed in position on top of the foundation, with several pieces of wood 9in. long to act as "spacers" (gauges). The bolts should then be inserted and screwed up until the distance between the boards at the bottom was 9in. Rough wood would serve to act as cleats nailed across the top of the boards, using the 9in. gauge whilst doing so. Cleats should not be nailed over the bolts, because when filling with concrete a good surface must be obtained where the bolt was placed. Be accurate in getting the bolt holes true, and continue with the boards until all the mould was set. Take the spirit level and plumb the whole of the mould. That would be easy if all the corners of the boards were true. Do not neglect to have the first course absolutely upright, otherwise all the future building would be affected. When the mould was correct, and the concrete ready, start filling the boards. It depended upon the weather and time of the year as to the moisture or dampness of concrete. A good plan was to make provision for skeleton door frames. If concrete floors, the door frames could be set up on the foundations; if board floors, about 3in. of concrete should be placed on foundation and the door frame inserted into the mould. Care should be taken to have the door frame square and upright, otherwise the door would not fit. Continue filling the boards and tamping the concrete solidly with the stones picked out of the rubble and as many more as one thought fit. With the boards filled by sundown, they could be removed with care at sunrise next morning, and removed to another part of the building and reset. When removing first take off all the cleats, then remove the nuts, and drive the bolts back level with the boards, care being taken to place the bolts in the boards with the nuts to the outside of the building. If so placed, and the bolts pushed back, one could easily lift off the outside board. Pull out the centre two or all the bolts except the two end ones, and then with one person at the end of the board, the bolts could be removed and the board taken down. The bolts should be placed in water and the concrete cleaned from the threads, as if that was not done immediately, the mixture would take some removing. One day between each course would allow the concrete to dry and harden. With a smaller building it would not be advisable to do that only in warm weather, where one could fill the boards in a couple of hours, and remove the boards, say, towards sunset, which would allow the concrete to set through the night. The first course finished, a considerable experience would have been gained, and the task which seemed great would have been surmounted, and one could then push forward with confidence. To set the boards on a 9in. wall required a little different handling than that on a 15in. wall. In order not to disturb the first course, or break the surface of same unduly, place a piece of rough board at the end of each end of the wall, crosswise, and then lift the boards up and place same along the centre of the wall. Insert the bolts and gradually move the boards out to the width of the wall. A couple of cleats nailed across the top of the boards would steady same. With one person on each side of wall taking hold of the boards opposite one another they could remove the piece of timber the boards were resting on, and allow the bolt to rest on top of the wall. The same should be done to the other end. Under that system one would find that the board was lower by 1in. than the top of the wall. Screw the bolts up until the boards were against the wall on each side. If the end bolts sunk into the wall, a piece of thin board could be placed on it under the same. Apply further cleats across the boards, and use the spirit level to plumb and level the boards. Continue to erect all the boards as previously, and when finished place barb wire throughout the course. That could be held in centre of wall with stones. That class of building could not have too much bracing in it. With the system of bolting each course to the previous ones, if one had the first perfectly upright, and in the future ones all the corners correct, the walls would go up as true as possible. It also left a very neat finish. At each course barb wire should be used for tying, also pieces of galvanized iron or tin nailed on to sides of door frames and windows to stay them in the wall. Windows as described were generally placed about 2ft. 6in. from floor. Care should be taken to see that the bed for these was perfectly level. The frames only measured about 5in. wide, so a piece of board 4in. wide had to be placed against outside of window to kep back the concrete. If building in a lintel for a fireplace, place two wooden stops or boards in between the boards to keep back the concrete. When the boards were taken down this space could be filled up with limestones, etc., and the tongue built out. The higher courses of concrete would simply be built in the usual way. If a verandah was desired, bolts could be built in to attach pitching piece to wall. When the height was reached, simply make holes in boards where one desired the bolts. Drive the bolt through a piece of galvanized iron or tin, so that when built in the bolt would not draw through the concrete. Flushing could be built in wall by placing same against side of board, building, say, 4in. in the wall. Tie bolts for wall plate could be built in as previously indicated. Such buildings as dwellings, stables, dairies, chaff sheds, implement sheds, and barns could be built in that way. With the latter one could make a mouseproof structure at a slight added cost. Build in the usual way, and when above the height of doors and windows, say at the eighth course, after the boards had been set, have kerosine tins opened out and bend a 4in. flange on same, and place along the whole course, slightly overlapping the joints. Kerosine tins opened out measured 36in. x 14in., and by turning a 4in. flange would leave 10in.; that part was placed against the board, and the 4in. part was built in wall. When the boards were taken down, that 10in. piece of tin could be drawn down horizontally out from the wall, and a 3in. or 4in. piece of timber placed closely under the tin, which was then bent around the timber. Remove the timber, and one would have a barrage formed that no mouse could pass. Before putting in the floor, throw a trench out against the wall, and insert opened-out kerosine tins right round inside of building; this would stop mice from burrowing through. Posts should be on the inside of the wall, and the building erected at least 10ft. from any other structure.

MONARTO SOUTH (Average annual rainfall, 14in. to 15in.).

August 4th.—Present: 15 members and five visitors.

Care of Sheep.—In a short paper on this subject Mr. J. Hartmann said a little attention given to sheep would save a lot of delay at shearing time. They should be kept free from dags by crutching, and have the wool clipped away from their eyes, as sheep would do much better if they could see properly. He thought it was best to keep clean-faced sheep and not have them too wrinkly and woolly in the face. The lower jaw should be clear of wrinkles, as the wrinkly pocket under the jaw would accumulate grass seeds, which would injure the skin before they dropped off. The sheep would lose condition, and would become blind. Occasionally lambs over three months old would die, and the cause very often puzzled the owners. He thought that was caused by the sheep eating the yellow leaves of dandelions close to the ground; they were covered with poisonous germs, and the best remedy was to shift the sheep frequently and not keep them too long in one paddock.

FARM HORSES.—In a short paper on this subject Mr. V. Braendler gave preference to the Clydesdale type of horse as the one most suited for farm work. He thought every farmer should endeavor to rear a couple of foals each year from the best mares that one had. The stallion should be sound, shapely, docile, stylish, and active, and should also hold the Government certificate. When two and a half to three years old the colts should be broken in and not worked too hard for the first two years.

MYPOLONGA.

July 11th.—Present: 15 members and 13 visitors.

CO-OPERATION.—In a paper on this subject Mr. H. J. Darwent, Inspector of Orchards, &c., said:—"It is generally considered that co-operation amongst fruitgrowers is only necessary when the time arrives for the marketing of the produce grown. This, in settlements such as these, is an erroneous idea. Fruit grown in portions of the State which are not contiguous to the metropolis must, to a large extent, be dried or preserved in some way, if the growers are to get it to market in decent condition. Or if it is to be put on the market in a fresh state, then it is necessary that some better means of regulating the sale of the produce must be found than is the case at present. And so it is necessary that growers should combine before that time arrives. At the inception of a fruitgrowing settlement much can be done by co-operation. The basis of co-operation is similarity of products, sentiment, and ideals, and its success depends upon the extent to which these can be harmonized. In the first place, an agreement should be arrived at as to the varieties of fruits which will be planted. Then, instead of there being many varieties, and only a small area of each, there will be enough of each fruit decided on to warrant the erection of plants for the working up of the produce of the whole settlement, instead of each grower putting up his own produce under separate marks, and with probably as many different qualities, to say nothing of the extra expense entailed when done individually. Buyers of fruit from a settlement where each is marketing his own are dubious about purchasing when there is so much diversity of quality, not only in different growers' fruit, but in that of the same grower in different years. A co-operative association aims at the production of the best article, the grading and packing being uniformly done, and the cost of everything in regard to marketing being reduced to a minimum. All materials can be purchased in large quantities, and so much cheaper. The greatest incentive to co-operation, so far as growers are concerned, should be the selfish interest of the middlemen. All profits made by these men can be gained by the growers when thoroughly organized, as the middlemen live on the industry. In the past companies have controlled many of these industries; the number of shares held is the main consideration, the grower, who does the work and takes practically all the risks, being only secondary. The shareholders are only in it for what they can get out of the industry, and which they may do quite legitimately while the growers are short-sighted enough to allow them. In a fruitgrowing association it is the value of a man's produce which determines his interest in it, capital being only incidental. The chief obstacle to the establishment of co-operative associations has been the need of legislation providing assistance by which industries may be carried on by those engaged in them, so that they may derive the full benefit of their efforts. But, fortunately, the trend is now towards assistance being given for the establishment of packing sheds, grading machinery, cool stores, &c., where growers form themselves into a co-operative association. This assistance is now available for settlers on irrigation settlements. In Canada, co-operation has increased prices 75 per cent. over those obtained previously. In addition to the benefit derived by the growers, it improves the quality of the produce, and is a guarantee to the consumer of a continuance of that quality, thereby ensuring the growers of a greater stability in the industry. A co-operative association may also be a buying association for its members, and so obtain fuller advantages from their combinations, resulting in savings of from 10 per cent. to 20 per cent. Manufacturers will not deal with growers individually, but when combined they can be induced to do so. Thus it is advantageous that different associations should federate, and in this way secure greater benefits in the way of securing supplies, as well as lessening the cost of marketing, and also enlarging the market for their produce. An excellent example of co-operation and federation is the Californian Fruitgrowers' Exchange; 6,500 growers distribute and market their fruit through the central clearing house. It is composed of local associations of growers, district exchanges, and the central exchange. All are organized and managed by growers on a non-profit basis, the entire net profits being distributed after deducting the bare operating expenses. The local associations are composed of growers in certain fruitgrowing areas; the district exchange is composed of members appointed by each local association in a district such as the area comprising the valley of the Murray; and the central exchange is made up by the appointment of one director from each district exchange. The local association assembles the fruit in a selected place for grading, packing, and preparing for shipment or railway. The growers receive payment for as many cases of each grade packed from the quantity which they bring into the packing house, after pooling each grade in the whole shipment. This work is carried out under the supervision of a competent person, preferably a disinterested one as regards participation in the returns obtained, and so is perfectly fair and equitable. The district exchange controls the business arrangements—orders trucks or boat space, keeps records, receives returns, and sends the proceeds to each local association. The central exchange furnishes the marketing facilities, arranges for agents in other countries, gathers information, advertises, finds new markets, assesses the cost of these duties, and levies it against each association. In short, its functions are to provide facilities for the distribution and marketing of fruit at the bare cost, leaving no margin for profit for the performance of these services. Different local association brands get different prices, that is, there would be no uniformity of price over the whole of South Australia, but in the local associations. In starting a co-operative association, especially in a new settlement, it is often contended that some of the initial expense can be saved by growers doing the work of preparing the fruit for market themselves, that is, some who have had experience in such work will undertake to do it. And so a few brief remarks on the preparation of fruit for market will not be amiss. If the best prices are to be obtained, then only good fruit, properly graded, and put up attractively, must be marketed. A careful study of the best methods of grading and packing is necessary. The quality of the work must be the first consideration. Fast packing without quality is of no use, and speed will follow experience. Thus the essentials to build up a successful trade are good fruit, properly graded, and honestly packed. Experience is the best guide as to the time to pick fruit. It must be matured, but not allowed to hang too long on the tree, as then its keeping qualities deteriorate. Great care must be taken in picking citrus fruits. An orange or lemon with a perfectly sound skin will keep for a very long time—in fact, until it dries up, instead of decaying. Blemishes in the skin admit the germs of decay, so care must be taken to see that no injury has taken place. While the fruit is on the tree the rind is filled with water, and is easily damaged, so care must be taken to see that stems are cut off close enough to the fruit to prevent them sticking into other fruits. After two or three days the skin toughens, or loses some of the moisture from the rind, and the risk of damage is diminished. Picking bags, which open at the bottom, are generally used in California. The bag is placed in the box, and the fruit is emptied out gently without bruising. Always grade for size, quality, and color, care being taken that there are no blemishes. Grading machines are now being used for this work, instead of its being done by sight, the sizes being more even, and there is no damage done to the fruit. The machines grade the fruit into sizes differing by a quarter of an inch. The size of the fruit can then be marked on the cases, and the purchaser knows at once how many fruits are contained in a case. If the grade is signified by letters or figures, such as A, AA, or 1, 2, &c., it is no guide, as what is branded A by one association may be branded AA by another. If the work is done by sight, care must be taken that the size does not come below that with which the case is to be branded. Rather should it be kept above, though such a case will not have the appearance of one evenly graded, though many of the fruits may be larger. Careful wrapping always pays best, as purchasers are shy at buying slovenly packed cases, and so the appearance counts for a great deal. Buyers are apt to judge the quality of the fruit by the class of the packing, or, in other words, if the wrapping is done in a slovenly manner, then the buyer will conclude that the growers are just as likely to be careless in regard to the quality of the fruit. The diagonal system of packing is the best. When packed on the square each fruit will be directly over another, which will cause bruising. When packed on the diagonal system, bruising is reduced to a minimum, as each fruit rests in the cavity between those below it. Pack all the fruit showing either the calyx or side. Piecework encourages poor packing, as the more a person packs the more he or she earns, generally regardless of the quality of the work. The appearance of the cases must be good, that is, bright and clean, as this is of great assistance in selling. Many growers prefer a stiff, rigid case, but the timber should be resilient enough to permit the gentle pressure used to make the timber on the bottom yield. Nailing the cases down after packing should be done with the case standing on two battens nailed to the floor, so that each end of the case is on a batten. This will allow the pressure used in nailing the last end of the lid to cause a bulge to appear on the bottom, as well as on the sides, and this will allow for shrinkage of the fruit. Do not dump or knock the case to make the fruit go down, as this will surely cause bruising. After using care in everything else, the appearance is often spoilt by carelessness in the branding of the case. It should be neatly and cleanly done, and with co-operative associations it is usual to have something emblematical. Many are now using attractive paper labels, which are pasted on the end of the case. By having all the cases branded alike, time is saved at railway stations and ports, as there is no handling needed for sorting, as when each grower has his own separate brand. In setting out the benefits to be derived from co-operation, I have endeavored to be as brief as possible. In conclusion, I would add that in order that the full benefit may be assured to such organizations, it is not only necessary that each person interested should work hard, but imperative that all should work in unison. Therein lies the sentiment which will give us the ideal for which we are striving. Perhaps it may be well to say something as to the varieties of fruits which it would be advisable to plant, when growers are combining the working of a reclaimed block as well as one for fruitgrowing. It is obvious that when the busiest time the dairyman has is the summer, he will be unable to attend to a heavy crop of stone fruits, which must be harvested as soon as they are ready, unless he neglects his cows. Thus it will be seen that if he is going to combine the two, he must plant fruits which will be ready for gathering when his dairying is at its slackest period, or which will hang on the trees without deteriorating for some days. These are the different varieties of citrus fruits, and grapes for drying."

POMPOOTA.

August 3rd.—Present: 41 members.

Sheep.—The Wool Instructor (Mr. Henshaw Jackson) gave an address on this subject, and pointed out that sheep could be run very successfully on small holdings. He looked forward to the time when the River Murray districts would be one of the largest sheep-breeding centres in the Commonwealth. The number of sheep in the United Kingdom was 28 millions, two-thirds of which were held in flocks of less than 50. The sheep was not a roving animal, as was usually supposed, and a man could comfortably keep 100 sheep in a five acre paddock. Six tons of lucerne hay would realise about £2 a ton, but that quantity of fodder would sustain 25 sheep for a year, and as every breeding ewe would realise £1, it could be readily understood what great benefits would result from the keeping of small flocks. Thus on their lucerne hay alone the settlers could get a return of £25. There was certainly a little more work to do, but the attendant risk was small. Wheat farmers, too, should realise that instead of getting 30s. per ton for their wheaten hay on the ground they could utilise it just as profitably by keeping and feeding sheep. He had known cases where sheep had been allowed to starve in sight of haystacks. That, he was quite certain, would not be the case in the future, for the farmer was beginning to realise the great possibilities of sheep.

ROSY PINE.

August 8th.—Present: 16 members and two visitors.

Manure for Cabbages.—In a short paper dealing with this subject, Mr. Lee said that if one wished to raise large and well-conditioned cabbages, plenty of plant food was required. He had found that animal manures gave the best results. If the soil was of a poor quality, the ground should be dug two spades deep, and a good layer of manure put between the spits. That was especially necessary in the case of autumn or summer crops, which had to stand a spell of dry weather. Cabbages planted in the autumn did well if set on ground that had been well worked and manured previously for peas and onions, and on such land cabbages could be planted without fresh manure being added. Lime was also an important factor in successful cabbage growing. It was chemically and mechanically beneficial to the soil and the cabbage roots. The lime should be applied at the rate of about 2lbs. to the square yard, and was particularly necessary to heavy soils and those rich in humus. Superphosphate at the rate of 2ozs. to the square yard was good, but should not be applied at the same time as lime, or to soils that were affected with club root. When a crop was nicely established, 1oz. of sulphate of ammonia applied to heavy, damp land, or 1oz. of nitrate of soda to a square yard in the case of light or sandy soil, would give good results. Nitrate of soda was an excellent fertilizer for the cabbage family. Where especially fine heads were required, the plants should be watered once or twice during the growing season with the following mixture:—1oz. of iron sulphate and 2ozs. of sulphate of ammonia dissolved in 1gall. of water. Mr. Lucier said ashes were a good preventive against aphis, and thought liquid manure a good fertilizer. Mr. Schiller had good results from cabbages by using poultry manure. Mr. Sickendich had used old stable manure with splendid results.

WAIKERIE (Average annual rainfall, 8.89in.).

August 3rd.—Present: 34 members and two visitors.

A paper on "Pruning," written by Mr. Young, of the Renmark Branch, was read and discussed. Mr. Williams introduced the subject of dealing with black spot on vines. Mr. Ross advised swabbing thoroughly with sulphate of iron and sulphuric acid before the buds burst, and removing all old bark.

WOLLOWA.

July 25th.—Present: six members and one visitor.

Harvester v. Stripper.—In a paper on this subject, Mr. A. Thompson said the question of the most efficient harvesting machinery for the district was being discussed by a number of farmers in the mallee country at the present time, owing to the recent wet season and the scarcity of labor. On plain country and well-settled districts the harvester was recognised as being most suitable; but in new mallee country such was not the case. The constant bumping and jarring on stumps caused continual breakages and loss of time. The sand thrown up by the wheels caused the fast-running bearings and cogs to cut out. The stripper was much lighter on the team. He considered that a crop could be much more economically dealt with by the stripper and small power winnower than with the harvester. That wheat which was damaged on the floor could be used for pigs' feed, but wheat blown out by the harvester was lost. A good discussion followed, members being unanimously in favor of harvesters.

BERRI, July 4th.—A good discussion on the subjects of "Pruning," "Cement Piping v. Open Channel Irrigation," and "A System of Spray Irrigation" took place.

FORSTER, July 7th.—Mr. C. Payne gave a short address on the conservation of fodder. Mr. James Searle thought that owing to the large amount of destruction caused by mice this season, conservation had not proved profitable. Other members took part in the discussion which followed.

HALIDON, July 4th.—The Hon. Secretary read a paper from the *Victorian Journal of Agriculture*, written by Mr. A. E. V. Richardson, M.A., B.Sc., on the "Cultivation of Wheat," which caused a good discussion.

KI KI, July 7th.—Mr. L. H. Angus gave a very instructive demonstration on poultry, which was appreciated by the members.

MANTUNG, August 4th.—HOMESTEAD MEETING.—The meeting was held at the residence of Mr. F. S. Poutts, when members availed themselves of the opportunity of inspecting the sheds, implements, stock, &c., of the farm.

MINDARIE, July 2nd.—FALLOWING.—Mr. Johnston initiated a discussion on this topic, and members expressed their different opinions on the subject.

MYPOLONGA, July 4th.—The Hon. Secretary (Mr. A. Wiadrowski) read two papers, one on "Curl Leaf in Peach Trees" and the other on "Bordeaux Mixture and Other Fungicides," by Mr. G. Quinn. Members discussed the papers.

MYPOLONGA, August 1st.—Mr. Dunn, M.P., delivered an address on cooperation.

PARRAKIE, July 28th.—Mr. Diener initiated a discussion on harrowing, in which he considered farmers did not attach sufficient importance to the use of that implement. Messrs. A. J. Beilitz, J. G. Temby, and W. E. Threadgold also advocated a more vigorous use of the harrows.

SHERLOCK, July 26th.—The Assistant Dairy Instructor (Mr. H. J. Apps) delivered an address.

SOUTH AND HILLS DISTRICT.

BLACKWOOD (Average annual rainfall, 27in. to 29in.).

June 18th.—Present: 14 members.

THE AGRICULTURAL BUREAU.—Under the title "Some suggestions," Mr. T. C. A. Magarey contributed a paper, in which he said:—"That the various Agricultural Bureaus in this State have been a great benefit to the man on the land is beyond all question. However, much as they have done, so much remains which they might do. There is always a danger that such work as they undertake to do may stagnate; and that there may be a lack of development and of originality. Hence it is wise that we should keep in touch with what is being done in other countries, that we may be in a position to adopt any improved methods which are suited to our conditions and circumstances. Though we have, in recent years, improved our methods in many directions, and although in some directions we can quite hold our own with the best in other countries, still we have much to learn from others, and we have much need of special study and experiment to make the best of our climatic and other conditions in Australia. The various Bureaus are by no means as active in these directions as they might be, and in the short paper you expect of me to-night I think I cannot do better than suggest a few directions in which we might aim to improve our usefulness. There has not in this State been such systematic effort as there should be to get improved methods, and to encourage producers to obtain the best possible results. It is true that the Government has done some good work in this direction, and individual growers here and there have given these matters intelligent attention with good results; but there has been no general movement in this country, and what has been done is done within narrow lines and not sufficiently on a profitable commercial basis. In the United States of America there is a great deal of competitive work amongst producers generally, but perhaps especially amongst the young folk (often mere boys and girls). There is the intense culture of small blocks of land, with competition as to who can get the best results from the various crops grown. The results are noted and published, and the methods adopted by the most successful ones are made known. We all know how hard it is to get the average producer to abandon the old time-honored methods, or to continue to advance if improved methods have been adopted. Some years ago the city control of several farms was in my hands, and I made a very early experiment with superphosphates. I selected one of the farm managers who appeared to be the most progressive, and for some years tried to induce him to experiment with varied quantities of manure; but the effort was a total failure. He had made up his mind that about 75lbs. per acre was good enough for him, and there he stuck. Now, in dealing with such men as this, if his children could be induced to have their own cultivation plot on the farm, and enter into competition as to the best method of cultivation, the results would be such an object lesson that in all probability the father's methods would be improved for the whole farm, or, at worst, that farm would wait until the young ones took control, when they would start with valuable experience, and soon learn how to experiment on a larger scale. On these lines the needs and circumstances of each district would soon be discovered, with great benefit to the country as a whole. The same principles apply to every form of production, and it is not necessary for my purpose to enter into details, but only to suggest directions in which our work might be profitably extended.'' The writer of the paper then dealt with the necessity for keeping the cost of production at as low a level as possible, and the need for co-operation amongst producers. It was decided to inaugurate competitions for children attending school, in such lines as crop growing.

BLACKHEATH.

August 4th.—Present: 10 members and three visitors.

Mixed Farming.—Mr. S. Pym read a paper on this subject. He thought farmers relied too much on wheat growing as their sole source of income. His experience was that mixed farming was necessary for many reasons. He gave first place to sheep as the most profitable side line, as there was very little labor attached to the tending of them. Not only were they a valuable asset in keeping clean and manuring the land of the farm, but they provided the household with meat, and then there were lambs and wool, which could be sent to market, and with present values ruling, return good prices. A few cows should also be kept, and he considered that the farm that did not produce its own milk and butter was working at a disadvantage. Pigs should be kept, and could be fed on foods that would otherwise have to be wasted. Poultry also, with very little attention, would provide another source of income.

CHERRY GARDENS (Average annual rainfall, 35.03in.).

July 10th.—Present: eight members and one visitor.

Green Manuring.—The Chairman (Mr. C. Ricks), in presenting a paper under this heading, stated that with the adoption of more intense culture, the question of manuring would become more important. He knew of nothing more likely to meet their requirements than the practice of green manuring. The method most general in England was, he said, as soon as the crop was taken off to go over the land with the cultivator or heavy harrows, and sow mustard, rape, tares, vetches, rye, or peas. In their district berseem would do well. With a little rain in January and February a good growth would be made by May or June. A disc plough could be run over the crop to cut it down, and it could be subsequently dug or ploughed under. Another method was to fold sheep on the green feed. A good discussion followed. The disc cultivator was considered the best implement for dealing with green stuffs preparatory to ploughing. Members generally considered peas the most suitable crop to grow for green manuring.

CLARENDON (Average annual rainfall, 33.67in.).

July 30th.—Present: 21 members and one visitor.

Milking.—Mr. A. A. Harper contributed a paper on this subject. He said one of the first essentials to milking and dairying was the absolute cleanliness of all milking utensils and yards. He strongly condemned the use of a dog and whip in bringing the cattle from the paddocks. He preferred tying the cows up by the horns to the use of the bail, and would always allow them to stand a while to calm down. He did not agree with the use of a leg rope unless it was necessary. The position the milker should take in milking was to sit square against the cow with the knee against her hind leg to prevent it from being lifted into the bucket. He was in favor of using a damp rag to cleanse the udder, as that was less liable to chill it than washing, and advised the dry hand system of milking. Care should be taken to empty the front quarters first, that would help to keep the udder in a better formation. The cows should be thoroughly stripped, by doing so one obtained a better percentage of butter fat, and the animals were longer in milk. He did not favor the use of milking machines.

CYGNET RIVER.

August 2nd.—Present: eight members.

Care of Farm Horses.—In a short paper on this subject, Mr. J. W. Codling said that first of all provision should be made so that the horses might have plenty of feed and a good stable. He thought the horses should always be watered before being fed. The collars and shoulders of the horses should be carefully attended to; that would prevent sore shoulders on many of the animals. A mare in foal should only be worked on the outside of the team, and never in country that was at all boggy, as she would be apt to slip the foal. He thought no horse should be worked more than eight hours in one day, but under present conditions one had to do as much as one could with the horses in as little time as possible. It was wise to feed, water, and bed the horses well, and they would stand the extra strain under present circumstances. In discussing the paper, Mr. H. T. Noske said he had worked mares in foal on boggy land, and had never lost a mare or foal. Mr. A. W. Miller favored feeding horses in a large yard. Mr. Wakelin had found it very beneficial to work a mare right up to time of foaling, but spelled her afterwards, and in the absence of good green feed, had fed her liberally.

FOREST RANGE (Average annual rainfall, 35in. to 36in.).

August 2nd.—Present: six members.

Gooseberry Growing.—The Hon. Secretary, Mr. H. H. Schultz, read a paper on this subject. He said the first point of importance was to have good, strong, and healthy bushes of either one or two years' growth. They could easily be grown. Clean cuttings of medium size, say, from 9in. to 1ft. long, should be selected, and all the buds trimmed off below the first three or four, and the cutting planted in good loamy soil 5in. deep. The soil should be kept loose and free from weeds. In planting out, holes could be dug to a depth of about 10in., and the bush set in the middle of the hole, and the roots then covered with about 1in. of soil and a good handful of bonedust or super. added. One could then fill up the hole and tread the soil down firmly. The bushes could then be left until spring, when they should be well hoed. Before planting, each bush should be examined, and all broken roots cut back short, and sound roots shortened to about 3in. He would leave only three or four main arms on the bush, and cut these back from three to six buds, according to the vigor of the bush. It was better to cut too hard the first year than too light, as it was a great advantage to have a vigorous growth from the commencement. In regard to pruning, he spoke of the two varieties with which he was acquainted, namely, Farrier's Roaring Lion and the Ostrich. The first-named should be shortened back each year, and also even thinned out, which would make the fruit easier to pick. The Ostrich did not need so much pruning, as the bushes grew much stronger. He had found it a good plan to manure lightly and at frequent intervals, rather than with heavy applications of super. When cultivating, the bushes should be dug in about August, when the manure was put on, and then well hoed in the early part of November; but they should not be hoed while the surface of the soil was at all wet, as the weeds would not die. In discussing the paper, Mr. McLaren considered that cuttings should be left with at least six buds on top, and he would put the manure in the bottom of the hole. Mr. J. Green thought it unnecessary to trim the cuttings, and would not plant them more than 2½in. deep.

GUMERACHA (Average annual rainfall, 33.30in.).

July 30th.—Present: eight members.

Tomato Culture.—Mr. A. W. Cornish contributed a paper on this subject in which he said that for growing tomatoes one should select, if possible, a piece of land well sheltered from north winds. The land should not be too heavily manured, as that tended to make too much growth on the bush and the fruit would not mature until late in the season. He had found that well rotted stable manure contained nearly all the food requirements of the plant, and should be ploughed in during the autumn. A handful of bonedust applied to each plant when planted would be sufficient to last through all stages of its growth. When artificial manure had to be used instead of stable manure, it should be one rich in phosphoric acid and potash with sufficient nitrogen to produce a free, but not over luxuriant growth of plant. To grow the young plants, a bed could be prepared by digging a trench and putting 18in. of fresh stable manure and covering that with 4in. or 5in. of good loamy soil. The seed could be sown broadcast and another very thin layer of soil put over them, the seeds then being covered with calico or glass. When the plants were from three to four weeks old, they should be transplanted in pairs to a warm piece of ground and each pair planted from 4in. to 6in. apart, and a covering made to protect them on cold days and nights. Great care was necessary while the plants were in the hot bed, to guard against excessive watering as that would induce dying off. Should watering be necessary, it should only be done on warm days. When the plants had been transplanted they should be shaded for a couple of days by rolls of calico or hessian over the glass in the daytime. Watering and ventilation were two very important factors. The plants should be left in the bed until at least 9in. high, and of a dark green color. When planting out to their permanent position a cool rainy day should be chosen. Unless rain was falling at the time of planting, it was a good plan to put a pint of water in with each plant. The plants should be 6ft. apart, and a scarifier run between the rows after each rain. If early fruit was desired, that could be obtained by judicious pruning of the bushes. For marketing, the fruit should be picked in buckets and put in the shade of a tree, and there graded into the various qualities. Care in handling and grading the fruit were most essential if one wished to obtain the best prices for the product.

HARTLEY (Average annual rainfall, 15in. to 16in.).

August 1st.—Present: 14 members and one visitor.

Lamb Raising.—Mr. D. Clark contributed a short paper on this subject. He favored a Lincoln-Merino cross ewe mated with a Dorset Horn ram for early marketing, as the lambs matured much more quickly than those of some of the other breeds. He thought lambing should be finished by the end of June, before the rough weather commenced. That would minimise the losses in both ewes and lambs.—Mr. S. Pratt read an extract from a paper on "How to Make Ensilage." Members discussed both papers.

PORT ELLIOT (Average annual rainfall, 20.33in.).

July 21st.—Present: eight members.

Annual Meeting.—The Hon. Secretary (Mr. H. B. Welch) read the annual report, and the election of officers followed.

Drying Fruit.—In a paper dealing with this subject Mr. H. Green gave some useful hints for those who had small gardens or orchards. In that district, near the sea, it was almost impossible to be successful unless one had a drying kiln. The best or only position to build the kiln was facing the north, against a wall, with the ends enclosed and sides for the drying enclosure. On one end the kiln could be built after the style of a tiring furnace, with a fire under the floor, and could be built with or without earth, a lining of bricks, a curved roof with a ventilator in the centre, and racks for trays. The best size for trays was 4ft. x 2ft., made of 1½in. square timber, and bars 1½in. x ¼in. nailed ½in. apart. A tray of that size could be handled by one person. All light-colored fruit should be sulphured if one desired them to be of good color. An air-tight sulphuring box was needed with slides for the trays. The sulphur should not be burned on any iron article, or it would form sulphate of iron and darken the fruit, but earthenware plates or saucers should be used. Apricots and peaches were pitted and laid open side up on the trays and put in the sunshine for two days to partly dry, when they were placed in the sulphuring box for one hour, and if one had a drying kiln they would be dry in 12 hours. Apples and pears were peeled and cut. He did not recommend dropping them in salt and water, as it softened them, but advised putting them in the sun as soon as possible, and then treating the same as apricots as regards sulphuring and kiln drying. All light colored fruits required sweating, and should be put in covered boxes to equalise, as some were over dried and others not enough, but by that process all would be made uniform. The fruit should be boxed and pressed, otherwise it would absorb moisture and discolor. Only apples and pears of the cooking varieties could be utilised for drying. With regard to plums and prunes of the fleshy kinds, no attempt should be made to dry these, as one would only have skins left after putting them through the process. The first step was to dip the fruit, and that could be done by putting them in boiling water and caustic potash for about 12 seconds, and then straight into cold water to wash out the potash, that would help to soften the toughness of the skin. Drying fruit was a long job, and only after leaving it in the sun for about a week should they be transferred to the kiln. It was difficult to prevent mould in prunes, but by not packing them too closely together, and by applying a little glycerine to polish and preserve them much would be done to obviate that fault. Currants were easy to dry, and if the weather was suitable they required no other process. Raisins should be treated in the same manner as prunes.

BLACKHEATH, July 18th.—Mr. H. J. Darment gave a pruning demonstration and an address in the evening.

CHERRY GARDENS, July 31st.—Members reviewed the work that had been done by the Branch since its inauguration in October, 1892, and much interesting discussion took place.

HARTLEY, July 4th.—ANNUAL MEETING.—The election of officers for the ensuing year took place, after which members discussed the topic of better facilities for handling wheat.

HARTLEY, August 24th.—HOMESTEAD MEETING.—The annual homestead meeting of the branch was held at the holding of Mr. J. M. Hudd. The proceedings were of a most enthusiastic nature. The Department of Agriculture was represented by Mr. H. J. Finnis (Acting Secretary of the Advisory Board of Agriculture), and among other visitors were Messrs. E. J. Pearce and G. Perry (Milang branch), W. Cummings and C. L. Taylor (Strathalbyn), and B. Pope (Mount Barker). A complete inspection was made of the farm appointments, and keen interest was manifested in subsoiling operations on a block of ground intended to be placed under apricots (four acres), and lucerne (two acres). The land was first ploughed with a single-furrow plough to a depth of 6in., and this was followed by a subsoiler which broke the earth up to a depth of 15in. Shortly prior to the previous meeting a bore had been sunk on high land, and on Friday water was being pumped from this by means of a petrol engine into a concrete tank reinforced with galvanised wirenetting. The pump had to lift the water from a depth of 135ft., and was producing 1,000gals. an hour. From the tank the water was piped to the house and the vegetable garden. In the evening there was the customary social, which was exceedingly happy. The Chairman (Mr. J. Stanton) presided. After the loyal toast had been received "The Empire" was proposed by Mr. C. Whiting and acknowledged by Mr. H. Taylor. The Hon. Secretary (Mr. C. M. Hudd) then briefly reviewed the year's work which, it was agreed, had been of a useful character. "The Advisory Board of Agriculture" was given by Mr. W. Cummings, and responded to by Mr. Finnis. Mr. F. Hassam proposed "The Dairying Industry," and Mr. J. M. Hudd spoke in reply. Mr. S. Beavis was responsible for "The Visitors," for whom Mr. Pope replied. The health of Mrs. W. Brooks was honored at the instance of Mr. C. L. Taylor. At the call of Mr. F. Lehmann a hearty vote of thanks was accorded to Mr. and Mrs. Hudd for their hospitality, and Mrs. J. Clezy, in their behalf, indicated the great pleasure they derived from the entertainment of their friends.

INMAN VALLEY, August 9th.—The Horticultural Instructor (Mr. G. Quinn) delivered an address on the cultivation of fruit, and gave a pruning demonstration.

KANMANTOO, July 28th.—A paper written by Mr. W. G. Mills on "Co-operative Shearing" was read by a member, and good discussion followed.

LONGWOOD, July 28th.—The meeting took the form of a homestead gathering at Mr. Hughes's residence, when a very enjoyable afternoon was spent inspecting the equipment of the farm.

MACGILLIVRAY, July 31st.—Two papers from the *Journal* were read by members, one on "The Sheep Fly" and the other on "Sorrel." Mr. Wiadrowski also read a selected paper on "Boiling Greens for Pigs."

SOUTH-EAST DISTRICT.

KYBYBOLITE (Average annual rainfall, 22in.).

Present: 11 members.

Mr. Fowler gave a practical demonstration on pruning at the Government Farm orchard, and in the evening read the following paper on "Orchard Pests and their Treatment." He said the orchards in that district were mostly young and just commencing to bear fruit, at which stage it was necessary that one should be able to identify some of the common and serious pests, and also the best means of dealing with them. Some insects confined their attacks to one class of plant only, namely, the codlin moth to pip fruit, and the potato moth to solenaceous plants. Then there was the fruit fly, which would attack almost any kind of fruit. The various methods of fast transit from one colony to another made it possible for pests to be introduced from far countries, and in many instances that had happened, but there were many serious pests from which, up to the present time, South Australia was free. The importaton of vines from Victoria was strictly prohibited on account of the danger of introducing Phylloxera, which was prevalent in that State. People were sometimes apt to become impatient on account of the various regulations, but they seemed to lose sight of the fact that those regulations were formed with the idea of preventing, as far as possible, the introduction of any fresh diseases into this State. Orchard pests could be divided into two classes, insects and fungoid, one class obtained its food by eating with mandibles, such as beetles and the larvae of moths, and the other by suction. The first named could be destroyed by poisoning their food with some easily applied poison, and for that purpose he recommended arsenate of lead. The second class of insect could be kept in check by contact sprays which killed by suffocation, and in some cases by burning or fumigation. The fungus diseases were also divided into two classes, those which grew on the surface of the plant and absorbed their food from the superficial cells by means of suckers could be destroyed by dusting flour of sulphur on them during the hot weather or by spraying with Bordeaux mixture. The internal fungi could not be reached by any form of spray, and were best represented by Black Spot of the apple and pear, curl leaf of the peach, shot hole and scab of the apricot, and Irish blight of the potato. The only method of dealing with that class was spraying, and that could only be regarded as a preventive, and to be at all effective it should be applied to the spores of the disease which were on the outside of the plant. Codlin moth was one of the most prevalent and serious pests that orchardists had to fight against, as practically every gardener was troubled with that insect, but that was no reason why measures should not be taken to keep it within reasonable bounds. To successfully cope with that pest, one should give careful and systematic attention to the plants so affected. To prepare the trees for spraying, the bandages should be attended to, rubbish cleared away, and pruned in such a way that it would not be necessary to use a long ladder. The trees should be well opened out to make the spraying effective. Arsenate of lead, which could be purchased in either paste or powder form, and used at the rate of 1lb. to 25galls. of water, and the powder mixed at 1½lbs. to 50gals. of water, was generally recognised as being most effective. When spraying for any pest or disease, it was well to know a little about its life history and habits, and also something of the nature of the spray being applied. No good results would be obtained by spraying an insect pest with a fungicide or a fungoid pest with an insecticide, and those mistakes were sometimes made. He had noticed apricots sprayed for shothole with arsenate of soda, and apples sprayed for codlin moth with Bordeaux mixture, and the gardeners wondered why the apricots were scorched and the codlin moth was not killed. He knew of no spray that was a cure-all, as different pests required different action from the spray; thus arsenate of lead killed by poisoning and would only be effective against such insects that would eat it. Tobacco wash, resin compound, scalecide, and red oil killed by coming in contact with the tender bodies of the insects and were effective against scales and aphids. Burgundy and Bordeaux mixture, which were fungicides, acted by checking the spread of fungoid diseases by means of spores. Neither of those mixtures would be effective against codlin moth or aphides. As codlin moth existed in its larvæ stage by gnawing and eating it would be seen that the spray that killed by poisoning would be most effective, though no doubt a contact spray would kill them. That would be hardly practicable as the larvæ did not remain long outside the fruit. At the present time the larvæ or grub of the codlin moth, which left the apples late last season, were to be found in the grub stage, and would be discovered under the rough bark in the crevices and knot holes, particularly in the latter, where any half rotted or dead wood still remained. The larvae would, towards the end of October, change into reddish brown chrysalides, and when the apple and pear blossoms fell, and almost before the young fruit was noticeable, the moth burst the chrysalis and found its way into the open, generally doing so at night. The sexes soon paired off, and the female commenced to lay her eggs, depositing them in the case of the first brood, either in or near the calyx of the fruit, so that the first spraying should be done immediately the blossoms formed while the calyx lobes were still open, and in such a manner that the hollow cavities of the young fruit were well filled with arsenical poison, and the young grub when it hatched from the egg, which would be soon after the egg was laid, almost immediately began to eat its way into the centre of the fruit to get at its natural food, the pips. At the time it came from the egg it was very small, and would be hardly visible to the naked eye but for its tiny black head. In about three weeks time the grub was fully grown and bored its way out of the fruit, and if the apple had not already fallen to the ground, which was very often the case, it spun a web and lowered itself, either to a limb of the tree or to the ground, and it then crawled for refuge to the tree stem or any other available shelter to spin a cocoon and change to a chrysalis, and again emerge as a moth. That cycle was repeated at least twice during the season. As all the moths and eggs did not hatch at the same time it would be necessary to give the trees a second spraying, and with the later varieties of fruit another spraying should be given. It was the second generation of moths that gave rise to the most destructive brood of caterpillars, and the more effectively the first spraying was done, the smaller in number would the second generation be. The subsequent broods were laid anywhere on the fruit and the aim should be to keep a film of poison covering all parts of the fruit. Summed up briefly, to treat codlin moth effectively, prune trees within easy reaching distance of the ground, scrape off and burn all dead bark from the trunk and limbs, pay particular attention to all knot holes and crevices, saw off any split or broken limbs on apple, pear, or quince trees, and do that at once, as in a few weeks it might be too late to catch or kill any grubs hiding there. Spray when blossoms fall with an approved brand of arsenate of lead, and repeat the spraying three or four times. Remove all vegetable growth, stakes, stones, old fences, &c., from round or near the trees. Place bandages on the trees before the end of November, and look through them every eight or nine days, killing any grubs found in them, and later pick and destroy any infested fruit found on the trees or on the ground. The grub found in the potato was the larvae of the potato moth, and not the codlin moth as was very often asserted. Other insect pests, and one which caused considerable trouble at times, were the black and green aphides of the peach and woolly aphis or American blight of the apple. He suggested spraying with red oil in winter, and tobacco wash in summer, but in the case of woolly blight the spray should be driven in with considerable force, as the woolly down acted as a natural protection for the insect. Another serious pest was the curculio beetle, but placing traps filled with red oil emulsion had been found very effective. Other pests occurring in favorable seasons were the red spider, cherry green beetle, and numerous caterpillars. Red scale, olive scale, and mussle scale could be checked by spraying with arsenate of lead or by fumigation. A dull calm day should be chosen if possible, as most suitable for spraying.

MOUNT GAMBIER (Average annual rainfall, 32in.).

August 18th.—Present: 18 members.

Hand Feeding Sheep.—In an address on this subject, Mr. F. Major said he had found it a very good help to his ewes in the winter time, when the feed was short, to give them a little chaff every day. It seemed to bind them and help them on with the little grass they would get. He had been in the habit of giving his 140 or 150 ewes four bags of chaff a day. They ate it freely. He noticed in the last week that two bags was as much as they could eat. As chaff could be cut very cheaply he thought it was labor well spent. He had a little difficulty at first in getting them to go to it, but he sprinked a few oats around the trough, and then they went to it. He used a home-made trough. He erected four posts, two at each end, and stretched a wire from each post, high enough for a sheep to reach, and strained them tightly. Then he got a couple of 4bush. bags, and sewed them to the wires, and stretched two more wires inside, and sewed the bags to them. He had been doing that for the past six weeks and he thought that if any one was short of grass at that time of the year it would be advisable for him to try it. Mr. A. A. K[illegible]sby said chaff was not a very expensive item and if fed to stock he thought it would pay especially in the cold weather of winter time. Mr. Buck thought the trough made by Mr. Major a good one. Some troughs blew about and frightened the sheep. The Hon. J. Botterill had found that hessian was cheaper for troughs. All that need be done was to run a hem along one edge and reef the wire through it, and then strain it. Then instead of having two wires only inside he used to have one with blocks driven into the ground at certain intervals—8ft. or 10ft. apart—and stapled the wire on them. That kept the trough still, and did not frighten the sheep. It was very necessary to fasten it down. He had known dry hay to be carted out in the dry season in Queensland to the ewes before and during lambing time, and it was so successful that it was continued. In Riverina they did a lot of stock feeding with oats. Troughs were not used at all; people simply cut a hole in a corner of a bag of oats and hung it over the end of a cart and drove away letting the grain fall out. Oats was better than hay. Coarse hay was no good for sheep, but of fine hay they would eat every bit. Mr. R. Smith thought it was a very good practice to feed the ewes on chaff, especially at that time of the year, when feed was a little bit short. A few years ago he fed his ewes on straw chaff, and they seemed to do well on it, but after that he gave them good chaff. About the troughing, he found that if rain got on the chaff the sheep did not go to it afterwards. So he made a self-feeding arrangement. The upper trough was covered and there were holes in the bottom through which the stuff supplied a lower trough as it was emptied by the sheep. The troughs were made of galvanized iron. Mr. Sassanowsky found that the trouble was the waste of chaff through the wind. After a good many years they came to the conclusion that it was best to feed pure oats. They were useful in fattening lambs. Of course, they must always take into consideration the price of oats. In future he thought there would be a good deal more of that done, and farmers would be buying up oats and storing them for future use. Mr. Buck said he was feeding a few calves this year, and he used chaff, and also pollard, but they did not eat it. So he ground up Cape barley as fine as he could, soaked it at night, and next morning mixed pollard with it. He put that into the drinking trough, and the calves took to feeding on it, and he found they did well. He then tried oats, and the calves were fattening on them. The Secretary thought the subject a very timely one. The first year he fed his ewes on chaff, and they produced splendid fleeces, just like dry sheep. Last year he fattened his wethers on chaff and they travelled well to the Adelaide market and brought tip top prices.

MUNDALLA.

August 3rd.—Present: 10 members and two visitors.

Varieties of Wheat and Method of Cultivation.—Mr. E. H. Hodges contributed a paper on this subject. He said that no hard and fast rule could be laid down for the cultivation of the soil for any variety of wheat. Nature of the soil, climatic conditions, and locality were all important factors in determining the method of cultivation. While heavy clay soils could be cultivated to a depth of 4in., 5in., or even 6in. profitably, to cultivate light loamy or sandy soil to a depth of 2½in. or 3in. was courting disaster in the form of drift and takeall. The usual method on the Peninsula, which was mostly light loamy soil, was to fallow about 3in. deep as early as possible, say July and August, for preference, then harrow down as finely as possible with heavy harrows. In September, and not later than October, it was again worked to a depth of 2in.; the harrows followed again, and anything that grew after that was kept down by a few sheep. As far as the variety of wheat was concerned, in a district that could rely on a fairly good rainfall, late or slow-growing wheats were the most profitable, such as Marshall's No. 3, Silver King, and Yandilla King, with Federation as a mid-season wheat. In drier parts the earlier varieties were favored—Early Gluyas, Jacobs' No. 4, usually termed J4), Carmichael's Eclipse, Early African, and Golden Drop. The kinds most favored on the Peninsula were Marshall's No. 3—a rust-resistant wheat, a good wheat to stool, stood rough weather, was easy to reap, and an excellent milling grain. It was a practice in some places to sow half and half of early and late varieties, sometimes partly with Gluyas and partly with J4, which was a good wheat to reap. It was a practice to reap that in the early morning or on days when other wheats would not thresh. Grading was little practised in the North of late. Manures were used at the rate of from 60lbs. to 80lbs. per acre; in heavy clay soils 100lbs. per acre might sometimes be used profitably.

Ideas for Dairymen.—In a paper on this subject Mr. J. H. Turner said that the dairying industry could be successfully carried out in a district that had good green feed and a good supply of pure water, provided the cows were well cared for. Mr. J. H. Turner also read a paper, in which he outlined many useful points for those keeping cows on the farm.

NARACOORTE (Average annual rainfall, 22.60in.).

July 14th.

The Possibilities of the South-East as Regards the Production of Export Products.—In a paper dealing with this question, Mr. A. H. McBride said—"Taking the area of the South-East as embracing the electoral boundaries of Victoria and Albert, we have an acreage exceeding some of the small kingdoms of Europe. Unfortunately, a large percentage of this land is of inferior quality. The area of good land is very large and consists of a variety of soils, from peat to light sandy loams. The rainfall being plentiful makes the possibilities of production almost illimitable. To my mind, wool production for export is, and will continue to be, the primary industry of the South-East. The cultivaton of root crops, and the sowing of English and other suitable grasses, as is done in New Zealand, will greatly augment this industry. On the dry or higher lands of the South-East wheat will become an important export commodity, and improved methods of culture have demonstrated that it can be profitably grown. A few years ago a fallow paddock was a thing seldom seen in this district. It is now recognised that fallow pays. The dairying industry, next to wool-growing, is capable of great expansion in the South-East. Another industry capable of great expansion is bee culture, the climate and other conditions being highly favorable. The pollenation of fruit blossoms by bees is so important that the British Government have made a grant to the British Beekeepers' Association to establish an experimental apiary where courses of lectures, illustrated by practical manipulation of hives containing bees, are given during summer months. In winter the lectures are indoors, and are illustrated with lantern slides. The Government also make a grant for promoting Bee Associations, certificated experts and lecturers being sent all over the country. Some such action by our State authorities would no doubt stimulate interest and assist in establishing this important industry. The production of essential oils is an industry that could be advantageously and successfully carried on in the South-East. The immense areas of mallee makes the supply of material almost inexhaustible, and the demand from the outside markets of the world is always good for this commodity. Whilst treating this subject I may state that for years eucalyptus distillers were oftimes perplexed and inconvenienced by the infusion of certain leaves that were deleterious. A German scientist some years back located and named the oil that caused the trouble, Phillandrene. Some three years ago an Australian scientist made the discovery that the application of Phillandrene to the process of treating refractory ores excelled all other methods.

The Technological Museum authorities in Sydney give every assistance to prospective distilleries of Phillandrene. To those having gums bearing this oil, it is said to be a better paying proposition than wheat growing. The ham and bacon industry is one that is also capable of great expansion. The number of pigs killed weekly in the State is between 1,500 and 2,000. That number represents the consumption in the State. For the industry to successfully expand, it is essential that an overseas market should be found. At the present time pig rearing is carried on mostly as an adjunct of the dairying industry, but I am sanguine that the South-East will yet produce pig farms similar to those in America, the climate being ideal for the purpose. The poultry industry is another peculiarly adapted for the South-East, and will contribute largely to the State's export of eggs and poultry. The apple growing industry is practically in its infancy in the South-East, and the successfully established orchards of Joanna and Coonawarra have demonstrated that fruit equal to any in the world can be grown in the South-East. Prior to the war a large quantity was exported to Europe. When things again become normal the export business will expand, and as evidence of this and the stability of the industry the proprietors of the largest orchard in the South-East, Kelvin, have recently enlarged the area under fruit trees—mostly apples. There are approximately 100 acres in this orchard. In the foregoing remarks I have endeavored to show the different products of the soil that can be successfully grown and developed into an export trade. The South-East having little or no mineral indications except petroleum, its future prosperity entirely depends on its agricultural development. In conclusion I would suggest that practical results might follow the reading of this paper, by the expenditure of a small sum, say £100, on the sowing of two rows of wattle seeds in the railway enclosure between Tailem Bend and Bordertown, and across the little desert between Custon and Frances. That wattle will grow in this class of country I feel confident, and in a few years time the fragrant smell of the wattle blossom may arrest the attention of some passing speculator in the train, and induce him to form a company to exploit the wattle industry, and so put this at present useless land to some account.'' Mr. W. Loller said there was no doubt that so far as production was concerned, the South-East was in its infancy, and that there was great scope for development. The land was very patchy, but the great bulk of it could be put to good use. They had the climate and the rainfall. Pig-raising could be carried on well in the South-East, but they needed an outside market. They required some system of storage to keep the products to enable them to be exported as opportunity occurred. The Rev. F. W. Brasher said production was only beginning in the South-East, and there should be a great future before it. He was greatly impressed with the possibilities of their swamp lands. In Lochaber last year, he had seen splendid crops raised on them. He also saw good crops of maize, sorghum, and other summer crops. There were wonderful possibilities before such lands in their district. The Chairman agreed with Messrs. Loller and Brasher there was a big future before the South-East in production. They had first-class land, medium land, and inferior land, but nearly the whole of the inferior land could be made to produce something. On a great deal of it wattle could be grown. They had, on the whole, a very good rainfall, sufficient for most products. Their bracken country could be put to better use if it were cleared of rabbits, and as to their swamp lands with their rich black soils, they did not know their possibilities. During the last few years some of their reclaimed swamp lands had yielded good crops. In the raising of forage crops they were backward. They should do a lot more with stock on the hoof, and they would find it would pay them well, especially with present prices. All kinds of crops for dairying purposes, such as sorghum, maize, and millets would do well in their district. Mr. Alcock also spoke favorably of the paper, and agreed with previous speakers that the South-East had a great quantity of fine productive land.

SANDALWOOD.

August 11th.—Present: 12 members.

Fallowing.—Mr. J. Ritchie contributed a paper, in which he said the objects of fallowing were to clean the land and to conserve moisture. In order to keep as much moisture in the ground as possible it was necessary frequently to work the ground by using such implements as the harrows, &c. No definite time could be set for fallowing, as so much depended on climatic conditions. Ploughing was the only successful method of fallowing that would remove stumps, and was also very effective in destroying porcupine bushes. If fallowing was done early in the year the soil should be worked, especially after rain had fallen.

KALANGADOO, August 11th.—The meeting took the form of a discussion on the lecture recently given by the Dairy Expert (Mr. P. H. Suter).

MILLICENT, August, 17th.—SUGAR BEET.—Mr. Hart read a paper on the sugar beet industry. An instructive discussion followed.

NARACOORTE.—ANNUAL MEETING.—The Hon. Secretary (Mr. A. C. de Garis) read the annual report, which showed that 12 meetings had been held during the past year, with an average attendance of 27, which constituted a record for the Branch. Eleven papers had been given, and the Branch had received a visit from the Director of Agriculture (Professor Perkins). The finest achievement of the Branch was undoubtedly the inauguration of the farm competitions, the success of which was due mainly to the energy and euthusiasm of the late Secretary for the Branch, Mr. W. H. Smith.

PENOLA, August 4th.—Mr. S. Ockley read a paper on "Closer Settlement," and the Hon. Secretary (Mr. A. E. Lampe) read an extract from the *Victorian Journal of Agriculture.*

SANDALWOOD, July 7th.—Mr. J. F. Wood introduced a discussion on the profitableness of sheep in that district. He pointed out that in settled country sheep were a necessity for feeding down crops, fertilizing soil, destroying weeds, and providing meat for household use. He preferred the Crossbred, but where fences were poor, he advised keeping Merinos. Mr. J. R. Kealy suggested that the farm could be subdivided into four paddocks, in order that cropping and sheep grazing could be carried out in a methodical manner.

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Notice is hereby given that in future no applications for land, or for transfer, sublease, or mortgage of Crown leases or agreements will be approved to unnaturalised persons of *any* nationality, or to naturalised persons of enemy origin unless the consent of the Honorable the Attorney-General of the Commonwealth be first obtained by the parties making the application.

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The same principle will apply to land sold by auction.

OFFICIAL LIST OF LANDS OPEN.

The attention of intending applicants for land is directed to the Official List of Lands Open, which may be seen at the principal Post Offices, and copies obtained at the Office of the Secretary for Lands. The List shows the Areas, Localities, Prices, &c., of the Sections available and the conditions under which they may be applied for.

NOTICE TO APPLICANTS FOR LAND.

The Land Board meets daily (when necessary) at the Board's Office, Department of Lands, to deal with applications received the previous day for any lands that may be open in the Official List. Applicants must either attend personally or send a full written statement. Forms can be obtained at Post Offices, or on application to the Secretary for Lands.

HARRY JACKSON,

Commissioner of Crown Lands and Immigration

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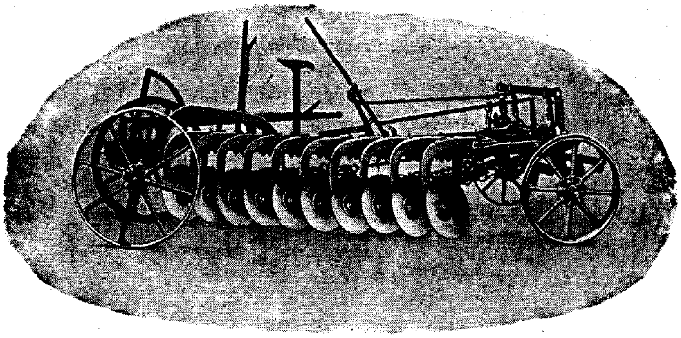

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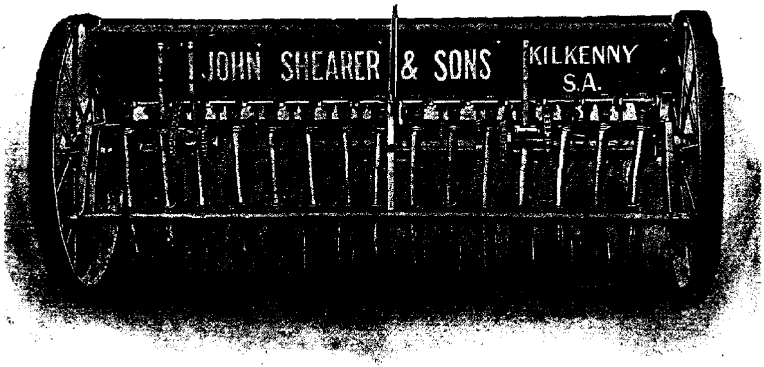

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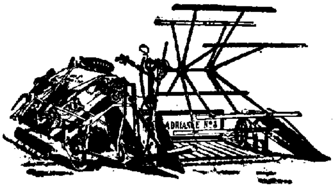

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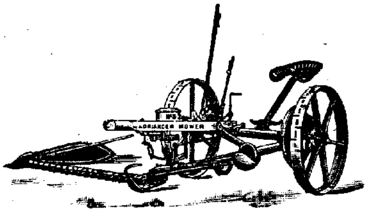

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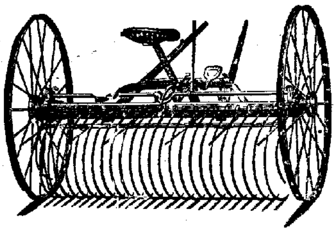

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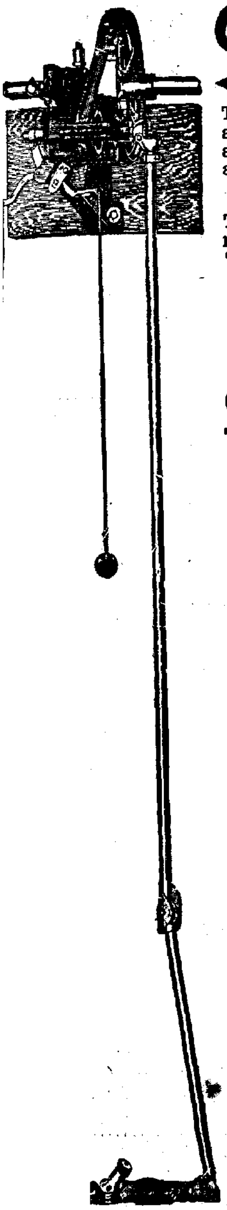

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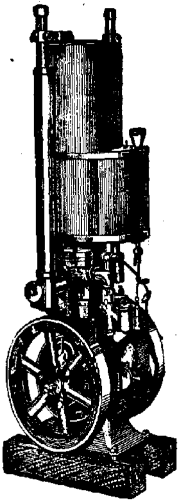

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AGRICULTURAL PUBLICATIONS.

The following publications have been issued by the Department, and are available for distribution at prices mentioned:—

"Fruit Tree and Grape Vine Pruning," by Geo. Quinn (Horticultural Instructor); price, 2s. 6d.; posted, 2s. 8d.

"Vinegrowers' Manual," by A. Sutherland; price, 6d.; posted, 7d.

Journal of the Department of Agriculture, 1s. per annum in advance; 3d. per single copy to residents of South Australia. Other places, 2s. 6d. per annum.

Any of the following bulletins and leaflets may be obtained by sending a penny stamp for postage:—

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Bloodworms	I.
Bot Flies and Bots	II.
Cocky Chaff and Straw as Feed for Stock	III.
Dairy Cattle, Suggested Rations for	IV.
Diseases of Farm Animals	75
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Farm Livestock: How to Lay Foundation for Good Strains	VI.
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